[Provisional translation]

Moonshot Research and Development

Moonshot Goals 1, 3, 6

Project Manager

Application Guidelines

Application Period

Tuesday, March 1, 2022 – Noon, Tuesday, May 10, 2022

国立研究開発法人
科学技術振興機構
Japan Science and Technology Agency

Overview of the call for application

(1) Schedule of the call for application and selection

Call for application starts from	Tuesday, March 1, 2022
Applications accepted until (Final time and date of acceptance from e-Rad.)	Noon, Tuesday, May 10, 2022 <No delay accepted>
Period of document-based review	mid-May – early June
Period of interview-based review	mid-June – early July
Notification and announcement of selection results (Notification sent to all proponents)	late July

※ Use e-Rad to apply for this call (see Chapter 6, "How to use the cross-ministerial R&D management system (e-Rad) for your application".

※ Applications will be accepted on e-Rad from early-April. The start of the reception will be announced on the website of this call:
https://www.jst.go.jp/moonshot/en/application/202112/

※ The underscore indicates that the schedules are fixed. All other schedules remain unfixed and are subject to change.

※ Notifications will be sent via e-mail to all proponents who are invited to the interviews. (No postal mail will be sent. Notifications will be sent to the e-mail addresses registered on e-Rad. Please ensure that you have set your e-mail address to receive our notifications.)

※ JST will notify proponents of the specific time and date of the interviews.
The schedules for the interview-based review and the period in which proponents eligible for interviews are notified will be announced on the website as follows:
https://www.jst.go.jp/moonshot/en/application/202112/

(2) The moonshot goals for which additional Project Managers (PMs) are called

Below are the Moonshot Goals for the prospective Project Managers (PMs) and their Program Directors (PDs) will attempt to achieve. Make sure to check the R&D concept to

achieve the goal and the PD Guidelines for PM Additional Applications in the appendix.

Moonshot Goal 1	Realization of a society in which human beings can be free from limitations of body, brain, space, and time by 2050. (PD: Prof. HAGITA Norihiro)
Moonshot Goal 3	Realization of AI robots that autonomously learn, adapt to their environment, evolve in intelligence and act alongside human beings, by 2050. (PD: Prof. FUKUDA Toshio)
Moonshot Goal 6	Realization of a fault-tolerant universal quantum computer that will revolutionize economy, industry, and security by 2050. (PD: Prof. KITAGAWA Masahiro)

Please note that the “proponents” referred to in these application guidelines and application forms are people who will carry out proposals as PMs, “leader’s institutions” are institutions that employ PMs and support PM activities, and “R&D institutions” are institutions with which the people carrying out R&D under the direction of PMs (performers) are affiliated. In addition, “leader’s institutions” and “R&D institutions” are also referred to as “R&D institutions, etc.”

(3) How You Apply for the Call

Download from the website the materials you need for making application including the forms for proposals: https://www.jst.go.jp/moonshot/en/application/202112/

Use e-Rad (https://www.e-rad.go.jp/) to apply for this call (see Chapter 6). Applications will be accepted on e-Rad from early-April. The start of the reception will be announced on the website of this call.

When the deadline is close, a large number of accesses may be made to e-Rad, which may overload the system, make you need a long time to view pages, make you unable to upload files, cause errors to make you go back to the top page etc., cause some other troubles, and make you unable to finish your application by the deadline. Allow yourself sufficient extra time to finish your application. **If you have not finished your application steps from e-Rad before the deadline, your application, regardless of the reason, will not be accepted as a subject of our examination. We will not accept any replacement**

or substitute of your written proposals after the deadline has come. If a large-scale system trouble should occur to e-Rad during the period of application and thus it should be difficult to make application from e-Rad, then we may post our corrective actions on the website of this call. Your understanding is appreciated.

Write the same organizations, posts, and other information on e-Rad and in the description on your written proposals (if any contradiction is found, the description on your written proposals are taken as an official one). Note that we cannot accept your proposal if your written proposal uploaded from e-Rad contains some difficulty that makes our examination difficult. "Some difficulty that makes our examination difficult" here includes any omission on the form of your written proposals, any erroneous conversion of characters that makes it difficult to read and examine the document, any important omission in any item provided on your written proposal, and the like.

For the precautions and the details of the application method, see the website of this call and Chapter 5, "Instructions for proponents," and Chapter 6, "How to use the cross-ministerial R&D management system (e-Rad) for your application."

The website of this call: https://www.jst.go.jp/moonshot/en/application/202112/

(4) Essential points for application

Below are the especially important points for application. Please make sure to confirm the related contents of the guideline.

●Completing the course on research and ethics education【See also 5.1】

The proponent needs to complete a program regarding research and ethics education at the institution to which they belong. Alternatively, an education program provided by JST must be completed by the application deadline. Note that if we cannot confirm their finishing the course, we will regard their applications as not having satisfied the requirements.

●Restrictions on multiple applications【See also 5.2】

（1）No one proponent is allowed to make applications of two or more R&D projects for

the same MS Goal .

（2）Anyone who is already a PM for another MS Goal (1~7) may also apply. Please note that we will also evaluate whether the requirements described in “3.1.1 Requirements that proponents as PM candidates are expected to have” are fully satisfied, such as all responsibilities of the R&D project must be undertaken for all periods of the R&D project’s implementation. “Apply” here refers to carrying out an R&D project as the leader of a proposal, i.e. a PM.

●Determination of leader’s institution after PM adoption【See also 3.1】

You can apply for this call even if you currently belong to an organization outside Japan and your leader’s institution* is not determined at the time of application. If, however, you are not able to designate your leader’s institution within one month** of being selected, then the adoption could be canceled.

*The leader’s institution must be the PM’s employer (a university, college, public organization, private enterprise, or the like) and be a Japanese corporation that is based in Japan. A PM must determine the leader’s institution as the base of his or her own activities in Japan.

**If the PM does not choose the present institution as the leader’s institution, the deadline will be three months after the adoption.

[If the English version of the information of call for application does not conform to the Japanese version, the Japanese version shall prevail.]

Table of Contents

Appendix

The following materials are posted on the webpage of the call:
https://www.jst.go.jp/moonshot/en/application/202112/

- ○ **Appendix 1 R&D Concepts**
- ○ **Appendix 2 PD Guidelines for PM Additional Applications**
- ○ **Attached Document 1: The basic approach for the Moonshot Research and Development Program (Council for Science, Technology and Innovation (CSTI), Headquarters for Healthcare Policy)**
- ○ **Attached Document 2: Guidelines for Operation and Evaluation of the Moonshot R&D Program (Cabinet Office, Ministry of Education, Culture, Sports, Science and Technology, Ministry of Agriculture, Forestry and Fisheries, Ministry of Economy, Trade and Industry)**

Chapter 0 To those who are applying for or participating in the project

0.1 Contribution to the achievement of Sustainable Development Goals (SDGs)

JST to contribute to the achievement of Sustainable Development Goals (SDGs)!

At the "United Nations Sustainable Development Summit" held in September 2015, "Transforming our world: the 2030 Agenda for Sustainable Development" was unanimously adopted; the document was an achievement that positioned "sustainable development goals (SDGs)" at its core, as a further comprehensive and new action target common to the world for human beings, the Earth, and its overall welfare. The seventeen goals included in the SDGs not only indicate various problems in relation to sustainability that are confronting humankind but also demand that these problems be solved comprehensively and in an integrated manner. It is expected that scientific and technological innovations will resolve such social problems and that scientific grounds are provided to contribute to the formulation of appropriate policies. We can say that these roles conform to the concept "the science in the society and the science for the society," a new objective of science that was declared in the "World Declaration on Science and the Use of Scientific Knowledge" (Budapest Declaration*) which was adopted at the International Council for Science in 1999. As a core organization aimed at promoting the science and technology policies in our country, JST promotes advanced fundamental researches and manages researches and developments that resolve problems corresponding to societal needs. SDGs are a worldwide objective that can itemize all JST's missions. Through JST programs, we want to collaborate with various industries, academia, governmental bodies, and private enterprises, as well as cooperate with researchers to realize a sustainable society.

Japan Science and Technology Agency

HAMAGUCHI Michinari, President

*The Budapest Declaration has declared that "science for knowledge," "science for peace," "science for development," and "science in society and science for society" are the responsibilities, challenges, and obligations of science in the 21st century.

・For sustainable development goals (SDGs), JST endeavors, and the like, please access the following website.

(In Japanese)https://www.jst.go.jp/sdgs/actionplan/index.html

(In English)https://www.jst.go.jp/sdgs/en/actionplan/index.html

0.2 Promoting diversity

JST to promote diversity!

"Diversity" is desired as a foundation that results in scientific and technological innovation. Regardless of age, gender, or nationality, human resources with various areas of expertise, values, and the like can exchange ideas and cooperate to creatively work together to develop a new world. In all fields of science and technology, JST promotes diversity to address the problems that our future society will face and to contribute to the enhancement of our country's competitiveness and mental resources. In the Sustainable Development Goals (SDGs) advocated by the United Nations, gender equality and other targets deeply linked with diversity are also stated; we will contribute to the resolution of problems in our own country that are also common to other parts of the world.

Recently, the acts of women have been seen as comprising the core of the growth strategy and as "the greatest potential force of Japan." Also, in researches and other developments, women's participation is important; among various human resources intended to support innovation in the field of science and technology, female researchers are essential. JST expects proactive applications from female researchers. JST has been listening to the researchers who use our "Maternity, Child Care, and Nursing Support System," which has been ongoing; and we have also been continuously endeavoring to improve the system by, for example, providing an environment in which researchers can return to their fields.

In our call for new research problems and our reviews, we will also consider applications from the perspective of diversity.

We will be grateful if researchers demonstrate their positive attitudes by applying to our program.

Japan Science and Technology Agency
HAMAGUCHI Michinari, President

We are waiting for your application

JST understands that diversification entails an understanding of people with ideas different from our own and combining them to create new values; based on this idea, JST has been promoting diversity. This will lead to not only solutions for the problems of our own country but also to those common throughout the world; in cooperation with organizations overseas, we promote diversity and in so doing, will cope with social problems on a global scale, including SDGs.

JST's diversity covers women, as well as young researchers and researchers from other countries. To ensure that all individuals can sufficiently exercise and play important roles, we have been continuously giving support to researchers during their maternity periods and those with children or in circumstances in which they are caring for the elderly. Further, we have also been making an effort to ensure that our committees will have well-balanced personnel assignments. Aiming for an environment in which a wide range of people cooperate and compete with one another, we welcome applications from female researchers, which we have not often received; thus, we are endeavoring to create new value.

We are eagerly anticipating proactive applications from you all.

Japan Science and Technology Agency
WATANABE Miyoko, Executive Director and Manager, Office for Diversity and Inclusiveness, Department of Developing Human Resources for R&D Programs

0.3 Aiming for fair research activities

Aiming for fair research activities

Unethical acts in researches or other dishonest research activities, which have been recurring in recent years, have destabilized the relationship of trust between science and society and have caused situations that should be cause for concern, such as those that obstruct the wholesome development of science and technology. To prevent injustices in researches, the autonomous self-cleansing function in the scientific community is needed. All researchers must strictly control themselves and based on a supreme sense of ethics, must cope with the creation of new knowledge and inventions useful for society such that they meet societal expectations.

As an organization that distributes research funds, JST takes injustice in researches seriously; we cooperate with the relevant organizations and make a thorough effort to take measures that prevent injustices from occurring, which will ultimately enable us to recover the trust of society at large.

1. JST thinks that ethics and fairness in research activities are extremely important for our country, which aims to be a nation based on science and technology.
2. JST supports research activities that are honest and accountable.
3. JST has no tolerance for injustice in researches.
4. In cooperation with the relevant organizations, JST copes with the promotion of education related to research ethics to prevent injustices and reorganize the system by which research funds are distributed.

We must grow a wholesome scientific community and culture based on societal trust to embody a bright future for society that is populated by dreams and hopes. We would like to ask for further understanding and cooperation from research communities and the relevant organizations.

Japan Science and Technology Agency

HAMAGUCHI Michinari, President

Chapter 1 An overview of the Moonshot Research and Development

1.1 Management principle and organization

1.1.1 Principle of management

Japan Science and Technology Agency (JST) began this “Moonshot Research and Development (Moonshot R&D)” based on challenging R&D concepts in which the Ministry of Education, Culture, Sports, Science and Technology(hereinafter referred to as “MEXT”) defines has defined the fields and areas where challenging research and development should be promoted to achieve Goals that attract the public (Moonshot Goal (hereinafter referred to as “MS Goals”)) regarding societal problems that are expected to have a great impact if they are realized, regardless of the difficulty in doing so, from the perspective of our future society. To begin the Moonshot Research and Development, we call for the project managers (referred to as “PM” from here) who will propose and manage the research and development projects for the achievement of the MS Goals and the realization of R&D concepts.

1.1.2 Overall management organization

The general management of Moonshot R&D will be supervised by the Governing Committee organized by JST. Further, the Program Directors (PDs) appointed by JST for the achievement of the MS Goals and realization of the R&D concepts will take charge of the management. Under each PD, the PMs selected for Moonshot R&D are required to promote each R&D project. (See Fig. 1.)

1.1.3 The roles of the PMs

（1） PM

The PMs collate the relevant knowledge from different researchers—top runner, young, and senior—in and outside Japan and formulate the scenario to achieve the MS Goals through backcasting—achieving the Goals, designing challenging R&D projects based on a bold idea that is not an extension of some conventional technology, planning and ensuring management of the organization for R&D, building an organization to provide support to the PMs, and ensuring management of the various

assignments to fulfill the above-mentioned aims (hereafter “PM activities”); thus, they take responsibility for R&D projects in general. The PMs, in principle, need to devote themselves to the PM activities.

(2) Performer

The performers must manage the assignments for the researches and developments entailed in the R&D projects, as instructed by the PMs, to achieve the MS Goals and embody the R&D concepts.

(3) Leader’s institution

These are the institutions that employ the PMs, and mainly manage the operations to support the PMs’ activities so they can be performed effectively and efficiently.

1.1.4 The roles of the committees organized within JST

(1) Governing Committee

The Governing Committee comprises experts from outside JST, and decides the major principles and methods and discusses other important issues for the operation of the projects, selects PMs, plans the execution, continuation, acceleration, and/or deceleration of R&D projects, and makes decisions on alteration and/or termination. JST makes decisions on what are discussed by the Governing Committee.

(2) PD

The PDs are appointed by JST for the achievement of the MS Goals and for the realization of the R&D concept and select PMs, strategically construct the portfolios (the management plans to sum up the composition (combination) of the R&D projects, the distribution of the resources, and other principles), decide the execution of the R&D projects, make evaluation, and give instruction for the promotion of the R&D projects to the PMs on the basis of the daily progress management of the R&D projects; thus, they take management of various assignments for the achievement of the MS Goals and the realization of the R&D concept. In cooperation with the sub-PDs and the advisors etc., who are external experts, the PD handles these kinds of work.

Anyone involved in evaluations for these reviews is obligated not to leak any information obtained through this series of reviews to any third party, both while

they are working to evaluate applications and after their work is completed.

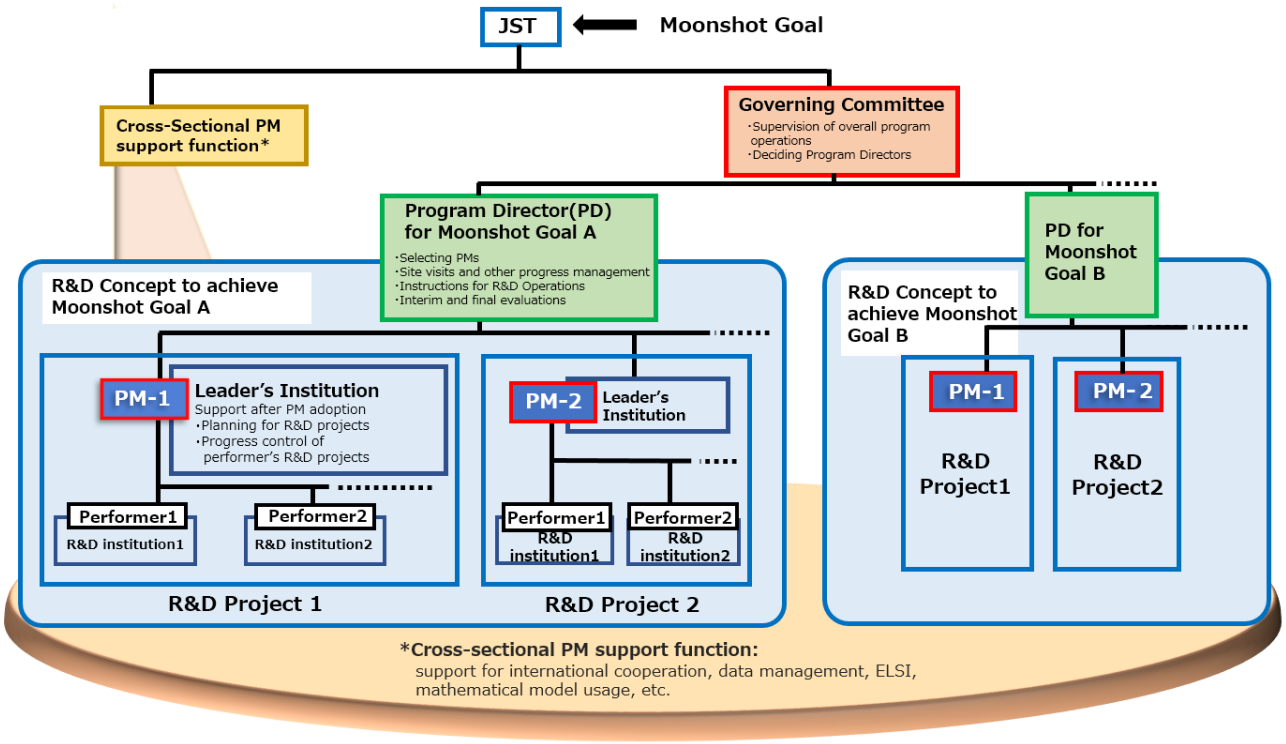


Fig.1. The organization for the overall operation of the Moonshot Research and Development

1.2 The workflow of project operations

1.2.1 Call for and selection of PMs

JST, based on the MS Goals defined by the Council for Science, Technology and Innovation (referred to as "CSTI" from here) and on the R&D concept defined by the MEXT, calls for, and selects, in principle, two or more PMs, who promote the R&D projects.

*As for the details of our invitation, see Chapter 2, "MS Goals and R&D concept etc." and, for the details of the call and selection, see Chapter 3, "The call and selection of Project Managers (PMs) "

1.2.2 PMs to refine and execute R&D projects

(1) Refining R&D projects

The PMs adopted for Moonshot R&D, with the direction by the PD in cooperation with

the sub-PD and the advisors, refine the R&D projects. During the period of refining, they further develop (review and embody) the R&D projects they proposed at the time of application. The refining includes reviewing the scenario to attain the MS Goals, the detailed plans for the R&D project, the organization to give support to the PM activities by the representative of the organization, and the like.

The PMs, whose refining (hereinafter referred to as “R&D project implementation plan”) is recognized as appropriate by the PD in cooperation with sub-PD and advisors, are allowed to execute the R&D project based on a determination of the refining appropriateness.

*For further details, please see section 4.2, ”PMs to refine R&D projects.”

(2) Starting R&D projects

To start an R&D project, top-level engineers, and young, senior, and other researchers are brought together for their vast knowledge to construct organizations for the same. The PMs use appropriate methods, such as designation and public invitations to select performers and construct organizations focused on research and development. The composition of the R&D institutions is determined during the refining period; however, depending on the progress status, changes in external environments, performers may be added and/or switched even during the period in which the R&D projects are executed. Further, considering the aims of Moonshot R&D, they should proactively promote invitations to accomplished overseas researchers and international joint researches.

To initiate the R&D projects, the leader’s institution and the institutions to which the PMs and performers belong (hereinafter referred to as “R&D institutions”) must take a pledge regarding the regulations governing the implementation of the R&D projects in which they are participating and must also draw up a contract with JST for the entrustment of the R&D projects.

*For further details, see section 4.3, “PMs to implement R&D projects.”

1.2.3 Evaluation of the PMs by the PDs

The PD, in cooperation with the sub-PD and the advisors, evaluates the PMs during the execution of the R&D projects. The evaluation of PMs adopted in this call will be conducted

in the third year (scheduled to be within FY 2025) from the time of the selection of PMs, and will also be conducted in other cases deemed necessary by the PD. In addition, if the project is decided to be continued after FY 2026, the evaluation will be conducted in the fifth (to be conducted within FY 2027) and eighth years (to be conducted within FY 2030). In either case, depending on the outcome of the evaluations, the R&D project may be continued, accelerated, decelerated, altered, terminated, or handled in some other way. The evaluation of the PMs is performed based on the progress status and regarding the milestones that were formulated in the implementation plans for the R&D project, the status of the PMs' project management, and so forth.

*For further details about the external evaluations and self-evaluations for R&D projects based on Attached Document 2 "Guidelines for Operation and Evaluation of the Moonshot R&D Program", please see section 4.4, "PDs' progress management and evaluation of the PMs."

1.2.4 Other

The operation of Moonshot R&D also conforms to "Guidelines for Operation and Evaluation of the Moonshot R&D Program" (Cabinet Office; Ministry of Education, Culture, Sports, Science and Technology; Ministry of Agriculture, Forestry and Fisheries; Ministry of Economy, Trade and Industry; February 4, 2020, Revision: December 28, 2021) defined based on "The basic approach for the Moonshot Research and Development Program" defined by CSTI and the Headquarters for Healthcare Policy (December 20,2018, Revision: February 27, 2020).

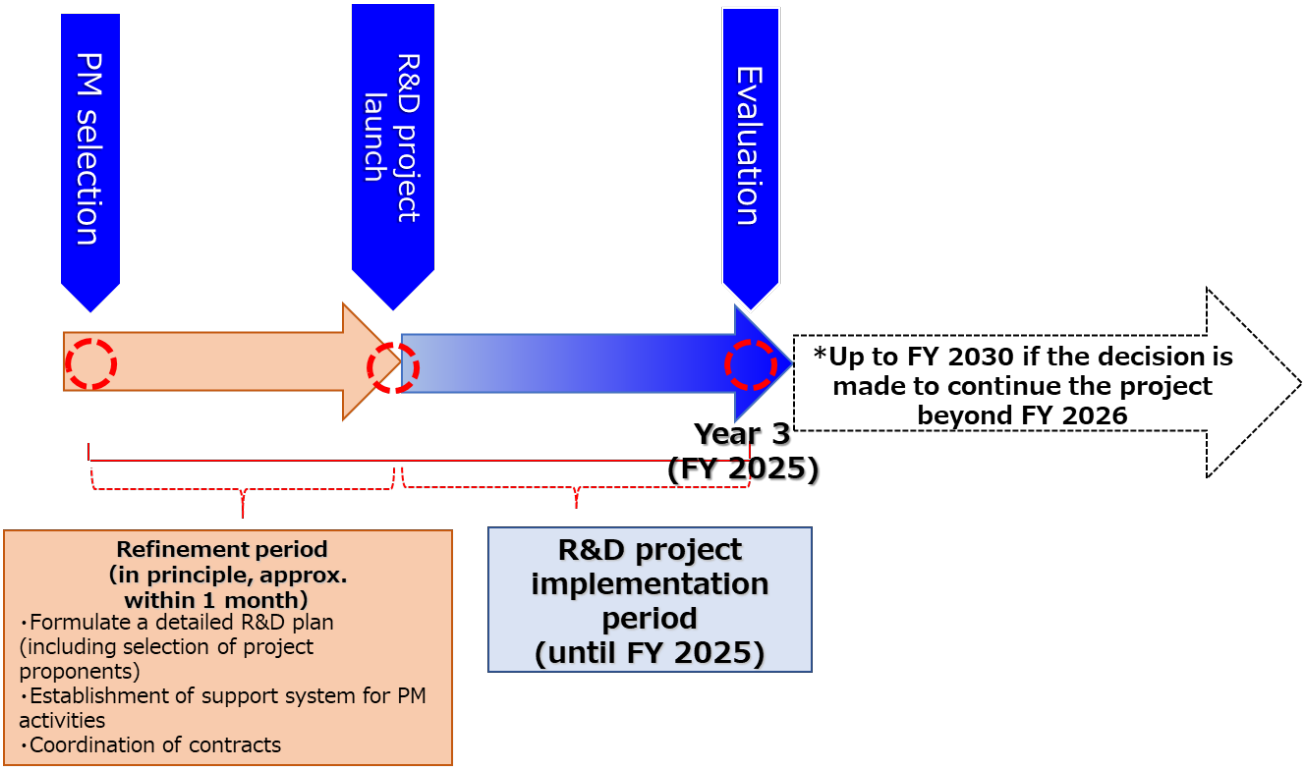


Fig.2. The workflow after the adoption

Chapter 2 MS Goals and R&D concepts etc.

2.1 MS Goals

The MS Goals that JST calls for proposals, and their respective Program Directors(PDs) are as follows.

Moonshot Goal and PD	R&D themes
Moonshot Goal 1 "Realization of a society in which human beings can be free from limitations of body, brain, space, and time by 2050." **PD : Prof. HAGITA Norihiro** Chair and Professor, Art Science Department, Osaka University of Arts	(1) Research and development for CA that can be used inside the body (2) Research and development that constructs the social acceptance infrastructure enabling safety, security, and reliability during CA teleoperation
Moonshot Goal 3 "Realization of AI robots that autonomously learn, adapt to their environment, evolve in intelligence and act alongside human beings, by 2050." **Prof. FUKUDA Toshio** Professor, Graduate School of Science and Technology, Meijo University	(1) AI robot technology for building a base of operations in space (2) AI technology to induce ideas, inspiration, and behavior change in people
Moonshot Goal 6 "Realization of a fault-tolerant universal quantum computer that will revolutionize economy, industry, and security by 2050." **Prof. KITAGAWA Masahiro** Professor, Graduate School of Engineering Science, Osaka University	(1) Research and development for promising quantum hardware (solid-state systems) for acquiring fault tolerance (2) Research and development for promising quantum hardware (e.g., atomic systems) for acquiring fault tolerance (3) Empirical research and development for large-scale quantum communication networks (4) Information processing system research and development for quantum error correction

2.2 R&D concepts

Toward the achieving MS Goals, MEXT set the R&D concepts that challenging R&D should be promoted. See “R&D concepts” in appendix.

Chapter 3 The Call and selection of Project Managers (PMs)

3.1 Proponent requirements

3.1.1 Requirements that proponents as PM candidates are expected to have

Regarding the requirements for the proponents, understand the following two items in advance.

*The proposals are not accepted or adopted, in principle, if it is revealed that the proponent requirements were not satisfied.

*The requirements need to be maintained during the period of the execution of the R&D projects. The PM is dismissed if the application requirements come to be not satisfied during the period of the implementation of the R&D project. Before filing an application, ensure that you understand the content stated in Chapter 5, "Instructions for proponents," as well as the below items, which should be considered when you apply for the project.

Proponents need to satisfy all of the application requirements (1) to (5) below.

（1） As much effort as possible must be made to monitor and manage PMs' activities.

*However, if the PD decides that it is extremely effective for the PM to perform part of the research and development of an R&D project on his or her own to achieve a particular objective, he or she may participate in research and development as a performer.

（2） Applications must be filed by one person, not by a group.

（3） All responsibilities of the R&D project must be undertaken for all periods of the R&D project's implementation.

*For further details, please see section 4.1, "The roles and responsibilities of the PMs, leader's institutions, and performers".

（4） A program regarding research and ethics education has been completed at the institution to which he or she belongs. Alternatively, an education program provided by JST must be completed by the application deadline.

*For further details, please see section 5.1, "Completing the course on research and ethics education."

（5） A pledge must be made regarding the following four items. The proponent must:

・Understand and be willing to conform to the "Guidelines for Responding to Misconduct in Research Activities" (decision, Minister of Education, Culture, Sports, Science and Technology, August 26, 2014)

・Understand and be willing to conform to "Guidelines for the Management and Audit of Public Research Funds In Research Institutions (practice standards)" (revised on February 1, 2021)

・Not have committed any misconduct in research and development activities (forgery, falsification, and theft) or any unjustifiable use of trusted research funds

・Not have committed any misconduct in research and development activities with respect to the past achievements of the researches and developments described in the applicable written proposal

*The pledges are available from the screen to fill in the information of proponents on the Cross-ministerial R&D Management System (e-Rad).

A PM must determine the leader’s institution as the base of his or her own activities in Japan.

The leader’s institution must be the PM’s employer (a university, college, public organization, private enterprise, or the like) and be a Japanese corporation that is based in Japan. For the specific requirements a leader’s Institution must meet, please see section 3.1.3, "Requirements for leader’s institutions.)

*You can apply for this call even if you currently belong to an organization outside in Japan and your leader’s institution is not determined at the time of application.

*If, however, you are not able to designate your leader’s institution within one month of being selected in principle, then the adoption could be canceled. If the PM does not choose the present institution as the leader’s institution, the deadline will be three months after the adoption.

3.1.2 Requirements for the proposed R&D projects

Before making an application, the proponents must understand that items (1) to (3) below must be satisfied for the R&D project they propose. Please also see section 3.6, "Viewpoints in selection."

(1) Compatibility with the Moonshot R&D program

- Scenarios leading to the achievement of MS Goals should be ambitious and based on more daring ideas, and if realized, should have a significant impact on industry and society and contribute to solving social issues.

(2) Scenarios leading to the achievement of MS Goals

- The scenario to be addressed in the R&D project should be formulated from a broad perspective, including not only technological but also social perspectives, and the issues to be overcome should be analyzed and identified accordingly.
- Provide scientifically supported methods and measures to solve the problems to be overcome.

(3) Plans for constructing a research and development organization

- The measures and plans for constructing an organization that further develops the ability to conduct R&D projects at the highest level, regardless of its location within or outside of Japan, not limited to a specific research community, and leveraging knowledge from a wide range of fields to solve problems.

3.1.3 Requirements for leader's institutions

As the base of PM activities, a leader's institution must endeavor to support the PM in devising effective and efficient activities and managing the business to support the PM's activities. A proponent, even if it is unclear whether the organization to which the proponent belongs will be his or her leader's institution, is allowed to make an application; however, he or she must determine a leader's institution by the close of the refining stage. The adoption will be canceled if a leader's institution is not determined within, in principle, one month* following the adoption of the project.

*If the PM does not choose the present institution as the leader's institution, the

deadline will be three months after the adoption.

Before making an application, the proponents must fully understand that items (1) and (2) below must be satisfied by the leader's institution.

(1) To be an employer of the PM, which is a university, college, public organization, private enterprise, or the like, that is a Japanese corporation and has a base of activities in Japan, and to employ the PM by the end of the refining period

(2) To accept the items described in section 4.1.2, "The roles and responsibilities of leader's institutions" and to finalize a contract with JST

3.2 Application period and schedules for selection

From Tuesday, March 1, 2022 to Noon, Tuesday, May 10, 2022

<No delay accepted>

Applications will be accepted on e-Rad from early-April. The start of the reception will be announced on the website of this call:

https://www.jst.go.jp/moonshot/en/application/202112/

For the details of the schedules of selection etc., see the opening section (1), "The schedule of the call for application and the selection."

If you have not finished your application steps from e-Rad before the deadline, your application, regardless of the reason, will not be accepted for review.

The schedule for the selection process is below.

Period of document-based review	mid-May – early June
Period of interview-based review	mid-June – early July
Notification and Announcement of Selection Results (Notification sent to all proponents)	Late July

*The schedule following the document-based review reflects the current plan and is subject to change.

*JST will notify proponents of the specific time and date of their interviews.

*Notifications are to be sent via e-mail to the proponents who are invited to the interviews.

(No postal mail is to be sent. Notifications are sent to the e-mail addresses registered to e-Rad. Make sure that you set your e-mail address to receive our notifications.)

*The schedules of the interview-based review and the period in which eligible proponents will be notified via e-mail of their selection for an interview will be announced from the website of this call as follows:

https://www.jst.go.jp/moonshot/en/application/202112/

3.3 The periods to implement R&D projects

In principle, the period of the R&D project is four fiscal years (until FY 2025). If the project is decided to be continued after FY 2026, the maximum period of the project is nine fiscal years (until FY 2030).

3.4 The monetary amount for R&D projects

Based on the content of proposal, the proponent can make the budget of R&D project the most appropriate amount that he or she estimates at the time of the proposal.

The R&D budget for a R&D project at the initial stage will be judged and determined by the PD in cooperation with the sub-PD and the advisors at the time of the refining after the adoption.

3.5 Methods of selection

3.5.1 The steps to select PMs

The proposals received will be evaluated through a document-based review and an interview-based review, carried out by the PD in cooperation with the sub-PD and the advisors. During the review process, individuals may be asked questions about the content of their application. The results of the PD’s selections will be discussed by the Governing Committee to determine the PMs. After this, JST will make a final decision on the PMs, based on the details of the Governing Committee’s discussion.

*Please note that due to the current situation caused by the COVID-19 pandemic, parts of the selection process may be subject to change. Should this be the case, we will inform you promptly on the program website.
https://www.jst.go.jp/moonshot/en/application/202112/

3.5.2 Management of participant conflicts of interest in selection processes

To achieve fair and transparent evaluation and research fund allocation, JST will manage the conflicts of interest as described below in accordance with JST's rules.

(1) Managing conflicts of interest of those involved in selection

To ensure a fair and transparent evaluation, parties with interest of the proponent that are listed below will not participate in the selection processes regarding the applicable proponents.

a. A person who is a relative of the proponent
b. A person who belongs to the same department, major, or the like as the proponent at a university, college, or R&D organization of a national research and development corporation or the like or to the same enterprise as the proponent
c. A person who engages in a close joint R&D project with the proponent. This refers to, for instance conducting a joint R&D project, coauthoring a research paper, being members of an R&D project for the same purpose, or being joint researchers tasked with a problem from the proponent, or practically belonging to the same R&D group as the proponent
d. A person who is closely associated with the proponent as a teacher or student, or they have a direct employer-employee relationship
e. A person who is in an academically competitive relationship with the proponent's R&D project or who belongs to an enterprise that is in a competitive relationship in the market
f. Any other person who is judged, by JST, to have shared interests with the proponent

(2) Managing conflicts of interest of proponent (PM-Performer relationship)

To avoid any doubts of third parties, we manage the following conflicts of interest between PMs and performers by appropriately considering the necessity, rationality, and adequacy of the situation. Situations for consideration include:

a. The PM is also a performer.
b. The performer is a relative of the PM.
c. The performer belongs to the same department, major, or the like as the PM at a university, college, or R&D organization of a national research and development corporation or the like or to the same enterprise as the PM.
d. The performer engages closely in a joint R&D project with the PM. This refers to, for instance, conducting a joint project, coauthoring a research paper, being members of an R&D project for the same purpose, or being joint researchers tasked with a problem from the PM, or practically belonging to the same R&D group as the PM.
e. The performer is closely associated with the PM as a teacher or student, or they have a direct employer-employee relationship.
f. The performer is judged, by JST, to have shared interests with the PM.

In consideration to the aim of this program, which is to gather the wisdom of a variety of researchers such as the top researchers, young and senior researchers in and outside the country, the conflict of interests with PMs are not judged from a uniform standard to expel them from the projects without exception. Even if there are conflicts of interest between a PM and a performer, the performer can be allowed to participate in the project considering necessity, rationality, and adequacy.

Proponents may be questioned at interview regarding a performer candidate who has a conflict of interest. Extra documents may be required to implement the management of conflicts of interest with a performer candidate.

(3) Managing conflicts of interest of proponent (PM-related organization)

If the proponent makes a research proposal with a “PM-related organization” specified as a joint R&D group, and JST allocates research funds to the PM-related organization,

it may cause a conflict of interest. Consequently, JST properly determines and manages the conflicts of interest between the two in consideration of the necessity, rationality, and appropriateness of doing so to avoid any doubt from third parties.

The “PM-related organizations” refer to the joint R&D group that meet any of the following. For “a” and “b,” not only PM but also the spouses and relatives within the first degree of PM (hereinafter collectively referred to as “PM, etc.”) shall be handled as follows:

a. An organization established based on the R&D results of “PM, etc.” (including the cases where the PM, etc. is not directly involved in management and only holds the title of a technical advisor, or where the PM, etc. only hold shares.)
b. An organization where the “PM, etc.” is appointed as an officer (including CTO but not a technical advisor).
c. An organization where the PM holds shares.
d. An organization from which the PM earns royalty income

Proponents may be questioned at interview regarding a “PM-related organization” specified as a joint R&D group. Extra documents may be required to implement the management of conflicts of interest with a “PM-related organization”.

(4) Managing conflicts of interest of JST

Adopting a JST-invested company (hereinafter referred to as the “invested company”) for the program and allocating R&D funds to the invested company may fall under the JST’s conflicts of interest. To avoid this, JST will implement management of the conflicts of interest to avoid any doubt from third parties related to JST and the invested company.

Proponents may be questioned at interview regarding an “invested company” specified as a joint R&D group. Extra documents may be required to implement the management of conflicts of interest with JST. JST manages the conflicts of interest to secure its fairness and transparency and does not handle an invested company unfavorably.

*For JST-invested companies, visit the following website:
https://www.jst.go.jp/entre/result.html#M01

When JST no longer funds the company, the company is not included in the management of the conflicts of interest and does not need to make a notification.

*The standard date of the notification is the day on which the open call for this program begins. The company to which JST has announced to invest as of this date should be notified. The company to which investment is internally decided but not announced need not be disclosed to maintain confidentiality within JST. For the disclosed investment of JST that is publicized, please visit the following website: https://www.jst.go.jp/entre/news.html

3.6 Viewpoints in selection

Our selection will be based on the following viewpoints and made in a comprehensive manner.

① Nature as a PM

○ To have a wide human network of relevant researchers within and outside of Japan and to possess specialized knowledge

○ To have the ability for management to construct an optimum R&D institution and review the organization proactively, depending on the status of the progress (including those in relation to the management and usage of research data) and to have leadership ability

② R&D project Proposed by a PM

○ The target and/or the contents of the project proposed by the PM (referred to as "proposal contents" from here) must be based on a bolder idea than conventional ones and be a challenging one and must be an innovative one with which a strong impact is expected in the future industry and/or society.

○ The proposal contents must be able to clearly explain the adequate scenario (the hypothesis of the success) from the viewpoint of social implementation including the viewpoint of technology and the assignments of the roles to governmental bodies and private sectors for the achievement of the goal in 2050.

○ The proposal contents must entail collecting the knowledge of researches and

developments and ideas at a high level, regardless of their geographical location within or outside of Japan.

And ensuring of transparency and fairness of research, appropriate treatment of research results, management of technical information and other items are to be considered because of importance in fair research activities.

3.7 How to apply

3.7.1 Application type

Follow the instructions on filling in the form to create a written proposal. Download the proposal form from the following website.

https://www.jst.go.jp/moonshot/en/application/202112/

The list of documents that must be submitted is provided in section 3.7.2, "Documents to be submitted".

Before filing an application, understand the contents of Chapters 0, " To those who are applying for or participating in the project " and 5, "Instructions for proponents."

For the details of how to apply, see Chapter 6, "How to use the cross-ministerial R&D management system (e-Rad) for your application."

3.7.2 Documents to be submitted

The list of the documents that must be submitted is as follows. In addition, JST may ask a proponent to provide additional information in the course of selection. A proponent may be asked to submit a statement of accounting of a leader’s institution if it is an enterprise.

[Form 1] An overview of the R&D project

[Form 2] The scenario to achieve the Moonshot Goal

[Form 3] Proposal for R&D project

[Form 4] Plans for promoting the R&D project and budget plans

[Form 5] Proponent management ability

[Form 6] Items implemented by PM for Refining

[Form 7] Information on conflicts of interest

[Form 8] Application status, efforts, and acceptance of other research funds

[Form 9] Human rights protection and managing the observance of laws

[Form 10] “Letter(s) of Recommendation”

[Appendix to Form] Performer candidate information sheet

Chapter 4 Promoting R&D projects after PMs are adopted

4.1 The roles and responsibilities of the PMs, leader's institutions, and performers

4.1.1 The roles and responsibilities of the PMs

The PMs gather the wisdom of a variety of researchers such as top-runner researchers, younger researchers, and senior researchers in and outside Japan, plan, propose, and implement challenging R&D projects based on a bold idea that is not an extension of some conventional technology, construct and take management on their own, and carry the responsibility for the R&D projects in general for the achievement of the MS Goals and the realization of the R&D concepts.

Specifically, they promote the following management responsibilities for R&D projects with the support of their leader's institution or the like.

[The management of the R&D projects performed by PMs]

(i) Designing R&D projects

○ Planning and proposing R&D projects

・To formulate scenarios backcast from the achievement of the MS Goals, to prepare R&D Plans, including the targets of R&D projects, specify milestones, etc.

○ Building research and development organizations

・To formulate plans to construct optimal research and development organizational infrastructure to promote R&D projects

・To select performers based on the above-mentioned plans

(ii) Implementing and undertaking the management of R&D projects

○ Undertaking the management of R&D projects

・ To summarize the R&D Plans for each performer, as well as the budget plans, to grasp the progress status, and to summarize reports, etc.

・ To promote cooperation among each performer as necessary

・ To undertake the management of research and development implementation, in addition to that mentioned above

○ Evaluating R&D projects

・ To flexibly conduct reviews to alter the orientation, including the acceleration or

deceleration of R&D projects conducted by each performer and the spin-off of part of research results

○ Applying research and development results

・ To formulate the principles of handling intellectual properties, to appropriately acquire intellectual properties, and to apply the results from the researches and developments, such as the activities required to transfer technology

(iii) Organizing a system to support PM activities

○ To hire and undertake the management of the work done by personnel supporting the PM activities from the leader's institution

○ To organize the system in relation to management, including the cooperation of performers in addition to the above-mentioned entity

(iv) Cooperation with JST

○ Reports to the PD, the sub-PD and the advisors as the external experts

・ To report on the status of the progress of the R&D projects to the PD, the sub-PD and the advisors

・ To respond to the advice and/or guidance from the PD, the sub-PD and the advisors

・ To respond to evaluation

○ Making Business Arrangements

・ The regulations governing implementation overseen by R&D institute, JST, contracting businesses, and each entity involved to manage the implementation

・ To cooperate with JST in symposiums, training sessions, etc. and participation therein

○ The management for the R&D projects instructed by the PD or the like besides the above-mentioned

(v) Publication and outreach activities based on the results of R&D projects

○ To undertake the management of the homepage, publish pamphlets, hold symposiums, make press releases, etc.

○ Two-way communication activities in which researchers explain their research activities to society in a way that is easy to understand (science and technology

dialogue with the public)

- ○ To report publication and outreach activities to JST
- ○ To undertake the management and operation of public relations and outreach activities regarding R&D projects in addition to those mentioned above

4.1.2 The Roles and responsibilities of leader’s institutions

The leader’s institutions are the employers of the PMs, which mainly undertake the management of the operation to support PM activities to ensure that the PM activities can be performed effectively and efficiently.

A leader’s institution, based on its contract with JST, organizes an environment in which the PM activities can be performed effectively and efficiently, hires personnel to support the PM, and constructs organizational infrastructure, thereby providing various types of support to the PMs’ activities, including managing the progress of the R&D projects undertaken by the performer, who works for the leader’s institution or any other organization, and supporting the PM activities.

Specifically, it supports the activities in section 4.1.1,"The roles and responsibilities of the PMs.”

In addition, a leader’s institution should manage the cross-organizational support provided to PM activities with the front-runner support function of Moonshot R&D, in addition to direct support for PM activities.

4.1.3 The roles and responsibilities of performers

The performers take management of the assignments for the researches and developments in the R&D projects as instructed by the PMs for the achievement of the MS Goals and the realization of the R&D concepts. The performers make plans for the R&D project based on the targets that should be achieved within the purpose and scope to implement the applicable tasks as instructed by the PM. They then implement the R&D projects based on the R&D Plans that have been approved by the PM. Before a performer initiates an R&D project, the R&D institution to which the performer belongs must finalize a consignment research and development contract with JST, as well as take a pledge regarding the regulations under which it will abide when implementing the R&D projects

in which it participates.

Furthermore, depending on the status of the progress of the research and development, and with the approval of PD, each PM may increase, decrease, or cancel the budget of the part of R&D project.

*PMs and performers need to observe section 4.7, "Contract items the PMs and performers should pay attention to," as well as the roles and responsibilities described in section 4.1.1, "The roles and responsibilities of PMs," and section 4.1.3, "The roles and responsibilities of performers." See these sections for further detail. PMs must observe these roles and responsibilities as if they were a performer, if they are allowed to implement R&D projects on their own and are conducting the tasks entailed therein.

*Leader's institutions and R&D institutions (referred to as "R&D institutions etc." from here) need to observe section 4.8, "Items the R&D institutions etc. should pay attention to in particular," as well as the roles and responsibilities described in section 4.1.2, "The roles and responsibilities of leader's institutions," and section 4.1.3, "The roles and responsibilities of performers." See these sections for further detail. The leader's institution must also observe them as an R&D institution, if its PM is allowed to implement the research and development on his or her own and is conducting the tasks entailed therein.

4.2 PMs to refine R&D projects

The PMs, with the direction by the PD in cooperation with the sub-PD and the advisors, refine the R&D projects. Specific items included in the refining are as follows: propose detailed plans for R&D projects (to formulate the scenarios backcast from the achievement of the MS Goals considering ELSI to prepare the R&D Plans, including the targets of the R&D projects and specified milestones, and to construct a research and development organizational infrastructure, etc.) and to construct an organizational infrastructure to support PM activities performed by the leader's institution. Through such refining, each type of investigation, such as trends in technology, workshops, and symposiums, is conducted or held to absorb opinions from various fields to achieve the MS Goals, the contents of the R&D projects proposed at the time of the application are further developed

(reviewed and embodied), and more effective and efficient R&D plans are proposed for the achievement of the MS Goals. The period of such refining is, in principle, within one month after the adoption. (If the leader's institution is not decided, R&D project cannot be started. If the PM does not choose the present institution as the leader's institution, the deadline will be three months after the adoption.)

[Important items, such as the contents comprising the refining of R&D projects]

（1） Further developing (reviewing and embodying) the contents of R&D projects

○ To formulate scenarios and specify the targets and milestones of the R&D project

・ Tracking back from the future society when the MS target for 2050 is achieved, extrapolating from the time of PM selection to the third (FY 2025), fifth (FY 2027), and eighth (FY 2030) years, as well as to the time when the MS target is achieved, and formulating scenarios to be addressed as R&D projects, including collaboration with existing R&D projects

・ To specify the targets of the R&D project and the milestones that can be quantitatively evaluated regarding the progress of the R&D project upon evaluation

*The evaluation is performed based on milestones previously defined at the time of the refining.

○ To make specific plans for research and development and for a research and development organization

・A specific R&D plan (R&D items, contents/approach, budget allocation plan, etc.) and a plan to establish an R&D system, including collaboration with existing R&D projects, based on the scenario to be addressed as an R&D project for the third (FY 2025), fifth (FY 2027), and eighth (FY 2030) years from the time of the selection of the PM

○ Constructing research and development organizations

・ The plans for selecting necessary performers to implement the plans created in the previous item (positioning within the research and development organization, selection timing, the methods, etc.)

- The selection of performers who participate at the beginning of the R&D project
- The plans for the research and development of the applicable performers (the problems in the R&D items, the contents and approach, the plans for distributing budgets, etc.)

○ Gathering wisdom and expertise from various fields

- Conducting each type of investigation, such as technology trends
- Hosting workshops, symposiums, etc.

（2） Constructing a system to support PM activities

○ Determining a leader's institution

○ Proposing plans to structure the organization to support PM activities

○ Constructing an organizational infrastructure to ensure the support necessary at the beginning of the R&D project and organizing an appropriate environment

（3） Other

○ Making arrangements for and organizing implementation regulations to define items that should be observed by participants in the R&D project

○ Moving the base of activities quickly into Japan (if the base of activities is outside Japan at the time of the adoption)

4.3 PMs to implement R&D projects

In cooperation with the sub-PD and the advisors etc., the PD judges the adequacy of the contents of refining. The PMs whose contents are recognized as appropriate are allowed to execute the R&D projects. PMs make arrangements for the implementation of the R&D Plans with each performer, who is selected in advance to carry out the R&D project. Performers must undertake the management of the scope of the research and development designated by the PM, among the tasks entailed in the R&D project. Specifically, PMs clarify the objectives required to implement the scope of the applicable R&D project and the targets that should be achieved within the scope, and performers propose plans for the R&D project based on the targets identified. Performers implement the R&D project under the management of the PM and based on the plans approved by him or her. PMs endeavor to understand the progress status of the research and

development implemented by each performer in a timely manner and give them instructions and/or advice accordingly. In cooperation with the sub-PD and the advisors etc., the PM judges the fact that the PM takes management of the R&D on his or her own. PMs are allowed to participate in the R&D on their own if they have an approval.

PMs try to understand the situation of the economy and social environment in relation to the applicable R&D project during the period of the implementation of the R&D project and need to implement the R&D project by confirming the adequacy of the scenario to reach the MS Goals having been created by themselves. In consideration to the aim of the Moonshot R&D that supports the R&D with high-risk and high-impact for leading disruptive innovation (See also ”The basic approach for the Moonshot Research and Development Program”), it is expected that PM manages the R&D project by the approach with a small start and stage gates. (e.g. In the case of a project that requires technical examination, although research results can be anticipated if successful, the project starts as its feasibility study with a small start.) Under the direction of PD, and depending on the process in R&D project and the changes in at the external environment, PM needs to manages R&D project agilely and flexibly with his or her power and responsibility, by changing the direction of R&D project that contains such as increases, decreases, and spinouts of parts of R&D project. (In accordance with Guidelines for Operation and Evaluation of the Moonshot R&D Program, and considering the results of external evaluation and self-evaluation, PM should decide continuation, increase, decrease, change, and finish of R&D project.)

In addition, when considering the aims of Moonshot R&D, they must proactively promote the invitation of top-tier, overseas researchers and international joint research activities.

For the start of the R&D projects, the R&D institutions etc. need to make a contract for the entrustment of the research and development activities with JST as well as to take a pledge with respect to the regulation for implementing the R&D projects.

4.4 PDs’ progress management and evaluation of the PMs

As for the progress management of PMs, evaluation, etc., in cooperation with the sub-PD and the advisors etc., the PD handles these kinds of work.

(1) Progress Management of PMs

PMs need to provide status reports of their R&D projects to the PD as requested. Their reports should be submitted, in principle, biannually; however, the timeline may vary. Furthermore, PD may visit the sites of R&D institutions etc. for the purpose of grasping the progress status, giving advice and/or instruction, etc. in cooperation with the sub-PD and the advisors etc., as necessary.

(2) Evaluation of PMs

The PD evaluate the PMs during the realization of the R&D projects, in cooperation with the sub-PD and the advisors etc.

The evaluation will be conducted in the third year (to be conducted within FY 2025) from the time of PM selection, and in the fifth (to be conducted within FY 2027) and eighth years (to be conducted within FY 2030) if the project is decided to be continued after FY 2026.

In addition, Funding agency will have the self-evaluation every year. The evaluation of the PMs are performed based on the status of the progress with respect to the milestones (standards and conditions) that can quantitatively evaluate the progress of an R&D project target and/or of an R&D project that is/are defined in the R&D plans as well as the status of the project management of the PMs. The evaluations are performed in consideration, as necessary, to the state including external factors such as the changes in the economic and/or social environments in the period up to the time of the evaluation from the time for refining.

Resulting from the evaluation, the R&D project plans may change, the R&D cost may increase or decrease, or the R&D project may be terminated altogether (a PM may be dismissed).

[Viewpoints of evaluation]

- ○ The appropriateness of project targets and contents aimed at achieving the MS Goals
- ○ The status of progress toward project targets (particularly comparisons of both domestic and overseas)
- ○ The future prospects of project targets

○ The status of establishing an R&D system
○ PM's project management status (including flexibility and nimbleness)
○ Status of research data storage, sharing, and disclosure
○ Cooperation with industry and the status of bridging the gap between the R&D and practical use in society (including the status of acquiring private funding [matching] and spin-out)
○ Effective and efficient R&D promotion through international cooperation
○ Challenging and innovative efforts based on bold ideas
○ Effective and efficient use of research funding (including role sharing between the public and private sectors, and stage-gates)
○ Bi-directional communication activities (public dialogue on science and technology)

(3) Others

To manage the PDs' portfolios, there may be opportunities for further review of the PMs, depending on their management methods after the evaluation period defined here.

4.5 Commissioned R&D contracts

（1）For the start of an R&D project, JST makes, in principle, a contract for the entrustment of the R&D with the R&D institution. Moreover, before the R&D entrustment contract, the R&D institutions and JST prepare regulations for intellectual property, the handling of secrecy, and other operational rules for the R&D project. The R&D institutions should make a pledge.

（2）If the R&D institutions cannot reach an R&D agreement, an organization for the management or audit of the public esearch cost is not completed, or the status of financial affairs is extremely unstable, then the applicable R&D institution may not be allowed to perform the R&D.

*For the details, see section 4.8, "Items the R&D institutions etc. should pay attention to in particular."

（3）The intellectual properties such as patents that come from the R&Ds are, on the

basis of the R&D agreement, in principle belong to the R&D institutions etc. on condition that the items described in Article 17, Industrial technology enhancement act (Japanese version the Bayh-Dole Act), is observed by the R&D institutions. However, this arrangement does not apply to R&D institutions overseas.

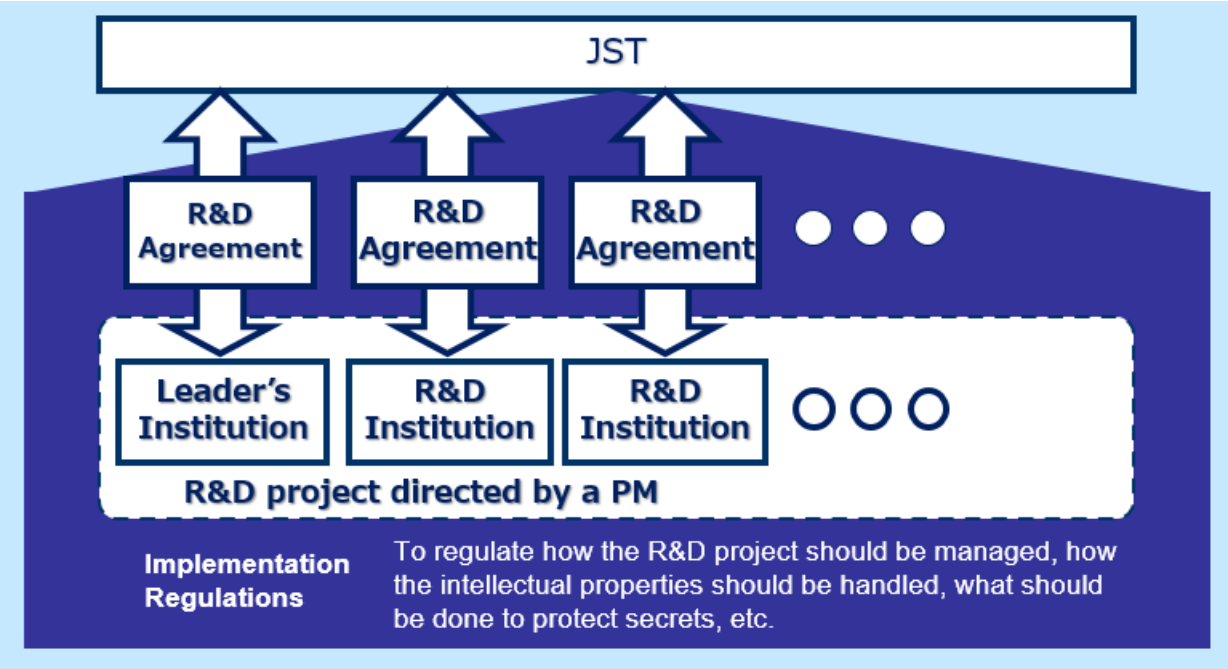


Fig.3 Organizations and Contracts

4.6 R&D funds

JST, on the basis of the R&D agreement, pays R&D funds as direct cost and indirect cost to the R&D institutions.

4.6.1 Direct cost

The direct cost is for the expenditures listed below paid by an R&D institution etc.

a. Cost for goods: the expense to purchase a new facility, equipment, or consumables*.

* For the purchase of a new research facility and/or equipment, assume the use of "a system to share the research facility/equipment by the unit of a research organization" ("equipment sharing system" from here). It is discussed in the "Introduction of a New Research Facility/Equipment Sharing System Integrated with the Management of Research institutions" (Advanced Research Platform

Group, Council for Science and Technology, November 2015). For more details, see section 5.13, "Promotion of sharing research facilities and equipment."

*In the R&D project proposal form, the description on the major facility to be purchased is needed; after the adoption is determined, in the course of the refining of the R&D project by the PM, the plans for the purchase, operation, sharing of the applicable facility should be brushed up. In addition, from the viewpoint of the effective and efficient implementation of each R&D project implemented in this program, some arrangements may be made for the facility to be purchased with the direction of the PD in cooperation with the sub-PD and the advisors etc.

b. Cost for travel: the expense for the PMs', performers', and R&D project participants' travel, as described in the R&D plan for PMs and performers.

c. Cost for labor: The labor cost and rewards for the PM, the performers, and the R&D project participants*

*The duplicated labor cost of a person that is managed by the national government with a management expense grant for national university corporations, incorporated administrative agencies, or with government subsidies to incorporated educational institutions, will be excluded. Furthermore, the labor cost for the PMs and the persons who support the activities of the PMs conform to the regulations of the PM's institution. It should be within the appropriate scope, according to socially accepted ideas (to be discussed in deliberation with JST in advance).

*In JST's competitive research fund projects, a principal investigator (a PM or performer for the Moonshot R&D Program) at university can pay for costs for their own personnel and delegated work other than research (buyout costs) only when meeting requirements. For more details, check "5.10 Cross-ministerial expenses handling partitioned table".

d. Others: the cost for the publication of research results (submitting a paper), leasing equipment, transport, and patents.

*In Moonshot R&D, appropriating the direct cost to other costs is allowed when the research results are expected to lead to a patent during the R&D project implementation period (the cost for a patent application, patent lawyers, travel, procedures, and translation).

<Examples of costs that will not be refunded as part of the direct cost>

・Costs that do not conform to the purposes of the activities contributing to the implementation and/or operation of an R&D project

・Costs that should be paid from the indirect cost

・Costs that the JST judges inappropriate after the settlement of the budget for the costs of consigned research*

* JST has rules and guidelines that are specific to this program and concern account titles based on the development contract of consigned research, the clerical procedure manual, and the table of cost processing classification common for governmental bodies. Such processes may differ between universities, colleges, public research institutions, and public corporations, as recognized by JST, and companies, such as research institutions outside of universities or colleges, and private enterprises. For more details, access the following website and see the description of the clerical procedures.

＜Moonshot Research and Development - Instruction of procedures to execute contracted research and development＞

(for universites)

https://www.jst.go.jp/contract/moonshot/2021/moonshota.html

(for companies)

https://www.jst.go.jp/contract/moonshot/2021/moonshotc.html

4.6.2 Indirect cost

Indirect cost is the cost that is necessary for the management etc. of the R&D institutions etc. for the implementation of the R&D project, which can be paid based on the following ratio with respect to the direct cost:

Indirect cost is regarded, in principle, as 30 percent in comparison with the direct cost for universities and 10 percent for others (20 percent for medium- or small-sized companies only). The definition of medium- or small-sized companies is based on the situation at the time of the decision of their prospective participation in the R&D project.

They must conform to the Small- and Medium-sized Enterprise Basic Act, Article 2, Paragraph 1 (the scope of small- and medium-sized enterprises and the definition of terms).

When utilizing indirect cost, R&D institutions, etc., must create a policy for its use and execute this in a systematic and reasonable way, as well as ensuring transparency of expenditure, in accordance with the "Common Guidance for the Execution of Indirect Expenses of the Competitive Fund" (agreed upon by the coordination committees of relevant ministries and agencies for competitive research funding on April 20, 2001, and revised on October 1, 2021).

4.6.3 Multi-year contracts and the carry-over system

JST has R&D agreements as multiple-year contracts, which make it possible to carry over R&D funds and make contracts for procurements that continue beyond fiscal years. The aim is to further effective and efficient uses of R&D funds and prevent misconduct for the maximization of R&D funds. (as for the carry-over system, there may be cases in which multiple-year contracts are not allowed or carry-over is not applicable depending on the clerical management systems etc. of R&D institutions etc. besides the handling that is different among universities and companies).

4.7 Contract items the PMs and performers should pay attention to

(1) Participants must fully recognize that the taxes of national residents cover the R&D funds of JST, and they must spend them justly and efficiently.

(2) After PMs are adopted, they and the performers must observe the following items through guidance sessions, which are held by JST. They must submit to JST a document stating that the following items are confirmed. Furthermore, note that if the research ethics learning materials in Item c below are not finished, the R&D funds may be suspended until there is confirmation that the training course has been completed.

a. To observe the requirements of the public invitation and the regulations of the organization to which they belong;

b. To understand that the taxes of national residents cover the R&D funds of JST and

that they should not commit improper acts in their R&D activities (falsification, alteration, and/or theft of papers) or improperly use R&D funds;

c. To notify and educate others about their participation in the course on research ethics learning materials, as designated by JST (eAPRIN, formerly CITI); to prevent in advance improper R&D activities or improper use of R&D funds among the R&D project participants

*For more details, see section 5.1, "Completing the course on research and ethics education."

(3) To prevent improper R&D activities in advance (falsification, alteration, and theft), the R&D PMs and participants need to finish the research ethics learning materials (eAPRIN, formerly CITI).

*For more details, see section 5.1, "Completing the course on research and ethics education.

(4) The PMs and participants should proactively support and ensure a variety of career paths inside and out of the country for the young doctoral researchers who are paid with R&D funds.

*For more details, see section 5.14, "Improving the treatment of doctoral students", section 5.15, "Ensuring self-sustaining, stable research environment for young researchers", section 5.16, “Voluntary research activities of young researchers employed for implementing the project ” and section5.17, “Supporting various career paths for young researchers”.

(5) Handling R&D Results

a. Acquire intellectual property rights properly. You follow the R&D agreement and have your R&D institution apply for (or file) a patent.

b. If you publish a paper about the R&D results acquired from the implementation of an R&D project, explain that it is fruit of a Moonshot R&D project.

c. The PMs will be asked to submit, together with the R&D project plan to JST, the "Data Management Plan" that compiles, by following the items listed below, the retainment and management and the publication or non-publication of the R&D data accrued as a fruit and the principles of the usage of the R&D data you can publish and, based on this plan, to appropriately implement the storage,

management, publication, partial publication or non-publication of the data on the basis of the "Guidelines for Operation and Evaluation of the Moonshot R&D Program" and "JST's basic policies for handling research achievements toward an open science promotion."

・JST's basic policies for handling research achievements toward an open science promotion
https://www.jst.go.jp/all/about/houshin.html#houshin04

For the details of the items you fill in, see "The Guideline for the Use of the Basic Principle of JST in Relation to the Research Results for the Promotion of Open Science."
https://www.jst.go.jp/pr/intro/openscience/guideline_openscience.pdf

<The items you complete in the data management plans>
・The principles for the retainment/management of the R&D data as a target of management
・The principles in relation to the publication/non-publication of R&D data
・The methods of and organizations for publishable R&D data
・The assumed uses and purposes of publishable R&D data
・The endeavors for the promotion of the usage of publishable R&D data
・Other special remarks

d. For the advanced data management, clarify the categories of storage-sharing-publication of research data based on the open-close strategy. And promote research information exchange and storage-sharing- publication of research data, by utilizing the research data infrastructure system (NII Research Data Cloud) and other tools. When using NII Research Data Cloud, in order to ensure the accuracy of adding metadata to research data and reduce the input load, the necessary information related to this call registered in e-Rad will be provided to NII Research Data Cloud.

e. We will ask the PMs and performers to collaborate with R&D project participants on cross-sectional and outreach activities to promote cooperation and the multiplier effect in R&D at workshops and symposiums held by JST in or outside the country and for MS Goals and R&D concepts. In addition, we expect that global activities and publications will be proactively made in the course of the promotion of R&D activities.

(6) Understanding in advance that JST will provide the required information, such as the R&D project name, participants, and consignment cost, to the Cross-ministerial R&D Management System (e-Rad) and the Cabinet Office (section 5.29, "The handling information on e-Rad). In addition, we may ask that each type of information be provided.

(7) There are cases in which a tracing evaluation will be conducted after a certain period has passed after the end of an evaluation or the like in relation to the this program and/or after the R&D project. On such occasions, you are asked to provide each type of information or participate in interviews.

4.8 Items the R&D institutions etc. should pay attention to in particular

The R&D institutions etc. must sufficiently recognized that the original funds of the funds for the consigned R&D are public funds while the R&D project is implemented and, thus, try to implement the R&D projects efficiently. The R&D institutions etc. that cannot fulfill their responsibilities listed below are not allowed to implement PM activities or to implement the R&D.

(1) In the case in which the R&D institution, etc. are domestic organizations based in Japan

a. The R&D institutions etc. must, in principle, enter an R&D agreement with the contents presented by JST. In addition, they are obligated to implement R&D appropriately. They must follow the implementation regulations, the R&D agreement, the instructions for the clerical processes, and the R&D plan. If it is not possible to enter an R&D agreement, or if it is judged that the/or the R&D institutions etc. cannot let or lets the PM activities and/or the R&D be implemented appropriately, the implementation of PM activities and R&Ds at the

applicable/or the R&D institutions etc. are not allowed.

*For the R&D agreement template, access the following website:

https://www.jst.go.jp/contract/index2.html

b. The R&D institutions etc. need to make efforts for the appropriate execution of the Research funds after organizing a management and audit organization for the public R&D cost on the responsibility of the R&D institution etc. on the basis of the Guidelines for the Management and Audit of Public Research Funds In Research Institutions (practice standards) (decision, Minister of Education, Culture, Sports, Science and Technology, February 15, 2007; revised on February 1, 2021). Furthermore, R&D institutions etc. are obliged to make report periodically to MEXT on the status of the implementation of organizing the organizations etc. in relation to the management and the audit of public Research funds and to correspond to each type of surveys in relation to organizing organizations etc. (section 5.25, "Guidelines for the management and audit of public research funds in research institutions (practice standards)."

https://www.mext.go.jp/a_menu/kansa/houkoku/1343904_21.htm

c. R&D institutions need to make efforts for the prevention of misconducts after organizing necessary regulations and organizations on the responsibility of the R&D institutions etc. on the basis of the Guidelines for Responding to Misconduct in Research (decision, Minister of Education, Culture, Sports, Science and Technology, August 26, 2014). The R&D institutions must prevent misconduct after they have organized the necessary regulations and organizations. The responsibility of the representative and R&D institutions is based on the Guidelines for Responding to Misconduct in Research (decision, Minister of Education, Culture, Sports, Science and Technology, August 26, 2014). The R&D institutions must respond to each type of organizational survey in the guideline (section 5.26, "Guidelines for responding to misconduct in research").

https://www.mext.go.jp/b_menu/houdou/26/08/1351568.htm

d. The R&D institutions etc. are obliged to have the participants in the R&D projects fully recognize the contents of the guidelines described in items "b" and "c" above and to have them learn from the educational materials in relation to the research

ethics designated by JST.

e. The R&D institutions etc. need to appropriately make payment and take management by following the regulations of the institutions and the R&D institutions with consideration also to flexibility and to follow the applicable rules with respect to the items for which the rules specific to Moonshot R&D are provided in the (JST) official administration manual defined by JST while executing the R&D funds. The representative and R&D institutions that receive a subsidy for scientific research funds can conform to the handling of the scientific research funds at their leader's institutions and R&D institutions with respect to the items on the usage of R&D funds not described in the (JST) official administration manual.

f. The R&D institutions etc. need to make a contract with the participants in the R&D project to the effect that the intellectual property rights that may accrue by the implementation of the R&D belong to the applicable R&D institutions etc., or to organize the work regulations to define provisions to that effect. In particular in the cases in which a student or students that is or are not in the relationship of employment with the R&D institutions etc. becomes or become a participant or participants in the R&D project, it is necessary to make necessary arrangements such as making a contract etc. with the applicable student or students in advance so that the intellectual property rights in relation to the invention (including devices and the like) made by the applicable student or students in the course of the implementation of this R&D project belong to the research and development institutions except for the cases in which the student or students clearly cannot be an inventor or inventors. Further, with respect to the conditions for transferring the rewards of intellectual property rights, the R&D institution must take measures to prevent disadvantaging student-inventors.

If the right to transfer or implement exclusively is established for the applicable intellectual property right, it is necessary to acquire approval from JST in advance.

If filing an application or a patent, registering such establishment, or making a waiver is applicable, the R&D institution must submit a report to JST.

g. The R&D institutions etc. are obliged to correspond to the accounting audit by JST, the audit by a national government, or the like.

h. The R&D institutions etc. in the cases in which JST makes designation depending on an investigation on the organization for the clerical management, the status of accounting, or the like, need to follow the procedures of changing the method of payment of the R&D funds, the reduction of the consigned R&D cost, or the like. When the liquidation or downsizing of JST is necessary due to an assessment at the end of JST's mid- and long-term targets, or when revisions arise in the budgetary policies of the national government, we may cancel a contract before its expiration or reduce the R&D funds based on the special provisions in the R&D agreement. Based on the results of an evaluation of an R&D project, we may increase or reduce the R&D funds, change the period of a contract, terminate the research, or take other measures. If JST judges that continuing the R&D project is inappropriate, we may cancel the contract or take other measures even during the contract period. The R&D institutes etc. need to follow those instructions.

i. If the applicable R&D institutions etc. are the national government or a local government, when making an R&D agreement, they need to make sure to implement the procedure for necessary budgetary measures by the start of the R&D development agreement on the responsibility of the R&D institutions etc. (If a fault in a necessary procedure is revealed after making the contract, the R&D agreement will be canceled, the R&D funds will be returned, and other measures may be taken.)

j. As a course of the endeavors to prevent misconducts in PM activities and R&D activities, JST has determined to oblige the researchers etc. participating in a newly adopted R&D project and belonging to the R&D institutions etc. to take and finish the study course of the learning materials in relation to research ethics. (JST takes management of the procedures etc. necessary to take the study course). R&D institutions etc. are asked to take management so that applicable persons will surely take and finish the study course.

For this purpose, if the applicable researcher or the like does not fulfill the obligation to finish the study course in spite of the reminder from JST, JST will instruct the R&D institutions etc. to suspend the whole or part of the R&D funds. In these cases, the execution of the R&D funds should be suspended as instructed,

and do not resume the payment of the R&D funds until another instruction is made.

k. The R&D institutions etc. should provide measures, such as making a joint R&D agreement with other R&D institution to which the performer belongs. It should not violate the R&D agreement with JST or the implementation regulations for handling intellectual property rights and maintaining secrecy. Ensure that there are no issues with the implementation of the R&D project, the use of the R&D results, or the like.

l. As the funds for consigned R&D are originally public funds, please pay careful attention to the economy, efficiency, efficacy, legal adherence, and accuracy of their utilization, and ensure that they are handled appropriately in a way that establishes accountability. Please strive for systematic utilization, and be alert so that the R&D institutions can ensure that there is no procurement of materials at the end of the research period or the end of the fiscal year with the aim of using up the budget.

(2) If the R&D institutions are overseas organizations

a. The R&D institutions should enter into an R&D agreement with the content presented by JST. Indirect cost is 30% or less of direct cost. In addition, they are obligated to implement the R&D appropriately by following the R&D agreement and the R&D plan. If it is not possible to enter into an R&D agreement within three months after adoption, or if it is judged that the research at the applicable R&D institution cannot be conducted appropriately, the implementation of the R&D at the applicable R&D institution will not be permitted.

b. The R&D institutions etc., on the basis of the applicable principles or the like if the R&D agreement and JST defines principles separately, are obliged to make payments and manage the R&D cost appropriately. It is the responsibility of the R&D institutions to prepare in English a breakdown of the costs and describe the contents of the payments from the R&D funds (equivalent to the list of expenditures of domestic institutions). In addition, the R&D institutions etc. need to correspond to each type of surveys in relation to the status of the payment in response to the request from JST even during the period of an agreement.

c. The R&D institutions should transfer intellectual property rights that accrue during the implementation of the R&D to JST for no compensation (Article 17 of the Industrial Technology Enhancement Act; the Japanese version of the Bayh-Dole Act, which does not apply to institutions outside Japan).

* JST may judge that an R&D agreement should not be made to control security in trade for the institutions listed in the "Foreign User List**”.

**See also: https://www.meti.go.jp/policy/anpo/law05.html#user-list

Chapter 5 Instructions for proponents

5.1 Completing the course on research and ethics education

To apply to this program, proponents need to have completed a course on research and ethics education. Note that if we cannot confirm their finishing the course, we will regard their applications as not having satisfied the requirements.

Take the course on research and ethics education and apply for the procedure to declare your completion by following either one of Items (1) and (2) below. See Chapter 6, "How to use the cross-ministerial R&D management system (e-Rad) for your application," for how to input information.

(1) If the proponents have completed the program at the organization to which they belong

If an e-learning or training session, such as a course on each type of research ethics education (including eAPRIN, formerly CITI), has been finished at the time of applying, then use the e-Rad application information input screen to declare that the proponent has finished the program.

(2) If a program has not been completed at the organization to which the proponent belongs (including when no such program is provided by the organization to which the proponent belongs)

a. If eAPRIN (formerly CITI) has been finished in a JST project in the past

If an eAPRIN (formerly CITI) has been finished in a JST project at the time of the application, then use the e-Rad application information input screen to declare the proponent has finished the program.

b. Other than "a" above

If it is difficult to take a course on research ethics education at the organization to which the proponent belongs because, for example, such a program is not provided at the organization, the proponent can take a digest version of eAPRIN (formerly CITI) via JST. For how to take the course, access the website of the call for research proposals.

Website of the call for research proposals
https://www.jst.go.jp/moonshot/en/application/202112/

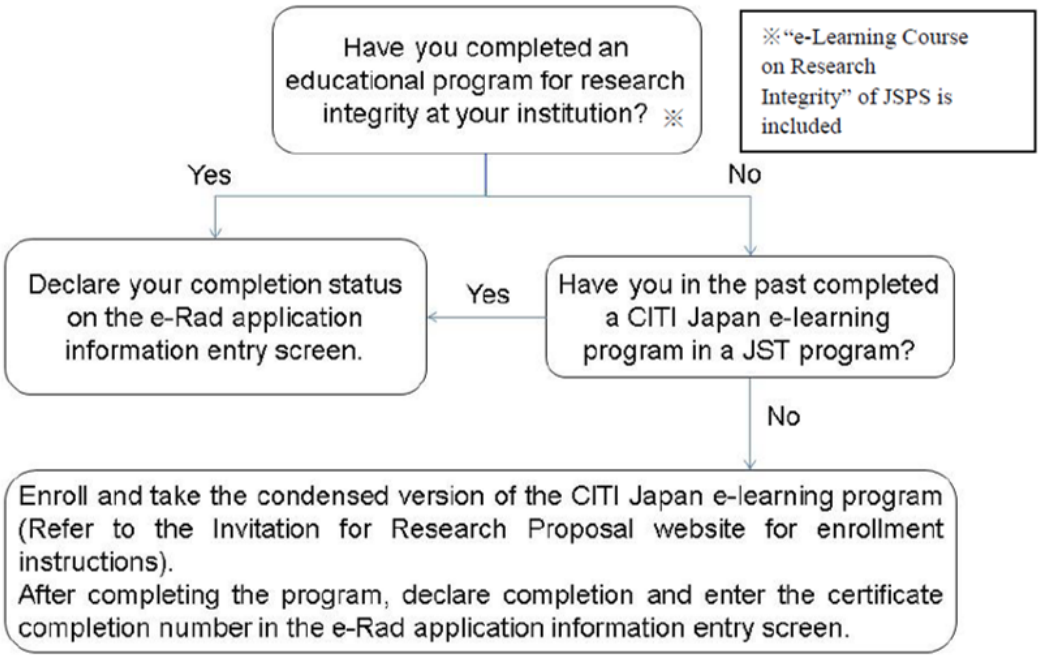
Access the following URL to take a course.
https://edu2.aprin.or.jp/ard/

It takes roughly one to two hours to take a course, and you do not need to pay for it. Complete the course promptly; on an e-Rad screen that allows you to register the information on your application, declare that you have finished the course and provide the number assigned to you when you finished the course, which is shown on your course certification (seven digits and ARD*).
*If you completed the course in August 2019 or before, the number begins with "ref #".

■ The inquiry office for the contents of the programs on research and ethics education
Research Integrity Section, Audit and Legal Affairs Department, Japan Science and Technology Agency
E-mail: rcr-kousyu@jst.go.jp

■ The inquiry office for the call for research proposals
Department of Moonshot Research and Development Program, Japan Science and Technology Agency
E-mail: moonshot-koubo@jst.go.jp
* Write, in the body of the email, the title of the call program, the projectID on e-Rad, the name of the proponent, and the title of the R&D project. Also, make sure to write "[2022 PM]" in the subject.

The flowchart for completing a course on research ethics and declaring the completion of a course



JST obliges the researchers participating in Moonshot R&D to complete the specific units of eAPRIN (formerly CITI). In the next fiscal year, we will provide the same opportunities; if adopted, in principle, all the R&D participants will be asked to complete the units of eAPRIN (formerly CITI). This excludes cases in which the units of eAPRIN (formerly CITI Japan) specified by JST have been finished.

5.2 Restrictions on multiple applications

In relation to the call of Moonshot R&D, the following restrictions were applied to multiple applications.

As for the other programs in and outside JST, certain measures may be taken if it is judged that an irrational duplication or an extreme convergence is made. For the details, see section 5.3, "Measures for irrational duplications and extreme convergences."

(1) No one proponent is allowed to make applications of two or more R&D projects for the same MS Goal.

(2) Anyone who is already a PM for another MS Goal (1~7) may also apply. Please note that

we will also evaluate whether the requirements described in "3.1.1 Requirements that proponents as PM candidates are expected to have" are fully satisfied, such as all responsibilities of the R&D project must be undertaken for all periods of the R&D project's implementation. "Apply" here refers to proposing an R&D project as the proponent (PM).

[Reference]

Table: Eligibility for applications and planning for R&D projects

Position in the proposal / **Position in other Moonshot project**	PM (Proponent)	Performer
PM	✓ **(Note 2)**	✓ **(Note 3)**
Performer (Note 1)	✓ **(Note 3)**	✓ **(Note 3)**

(Note 1): The MS Goals (1, 2, 3, 6, 8, 9) driven by JST define a "performer" as someone "who manages the assignments for the researches and developments entailed in the R&D projects, as instructed by the PM, to achieve the MS Goals and embody the R&D concepts." This definition of "performer" also applies in the case of the MS Goals (4, 5, 7) handled by other funding agencies.

(Note 2): We will also evaluate whether the requirements described in "3.1.1 Requirements that proponents as PM candidates are expected to have" are fully satisfied, such as all responsibilities of the R&D project must be undertaken for all periods of the R&D project's implementation.

(Note 3): Once you are allowed to participate in the project after selection, any extreme convergences or irrational duplication will be taken into consideration, and, based on the PD's judgement, you may be subject to adjustments such as the research funds for the project being reduced or applied to only one of the research projects you are carrying out.

5.3 Measures for irrational duplications and extreme convergences

○ The measures for irrational duplications

If the same researcher falls into any of the following cases with two or more national governmental bodies or incorporated administrative agencies (including national R&D incorporated agencies), and competitive funds duplicated and distributed unnecessarily to the same research problem (referring to the title and contents of the research for

which the competitive funds and in response to a call for proposals are distributed) by the same researcher, he or she may be excluded from the subjects of the selection in this program, the decision of the adoption may be canceled, or the funds may be reduced (referred to as "cancellation of the decision of adoption).

- Applications are made at the same time for two or more competitive funds for practically the same research problem (including the cases in which considerable duplication is made; the same applies to the following) and are adopted
- Applications are redundantly made for practically the same research problem that has been already adopted, and competitive funds have been already distributed
- There is duplication in the purpose of the research funds among two or more research problems
- Other cases similar to the above

Applications for other competitive funds are not restricted in the application phase for this program; however, if an application is adopted for any other competitive funds, quickly report to the office personnel of this program. If this report is omitted, the decision of the adoption in this program may be canceled.

○ The measures for extreme convergences

The decision of the adoption in this program may be canceled, even if the contents of an R&D proposal for this program and an R&D project implemented using another competitive funds differ, if the total of the R&D funds distributed in the applicable fiscal year to the applicable researcher or R&D group (referred to as "researcher group" from here) exceeds the limit that can be used effectively and efficiently, the amount is not used entirely within the R&D period, or any of the following applies.

- If excessive R&D funds have been distributed to the researcher group and the R&D method
- If the R&D funds distributed to the applicable R&D exceeds the researcher's effort (the ratio (%) of the time necessary to implement the applicable R&D with respect to the total time (100%*) of the work of the researcher)
- If an unnecessarily expensive R&D facility is purchased
- Other cases similar to the above

If the contents described in the proposal to this program should be altered after it is submitted because, for example, another application is made for another competitive funds and is adopted, quickly report to the office personnel of this program. If this report is omitted, the decision of the adoption in this program may be canceled.

*The time for research activities and teaching, management assignments, and other activities substantially equivalent to work is included in the total work time of a researcher.

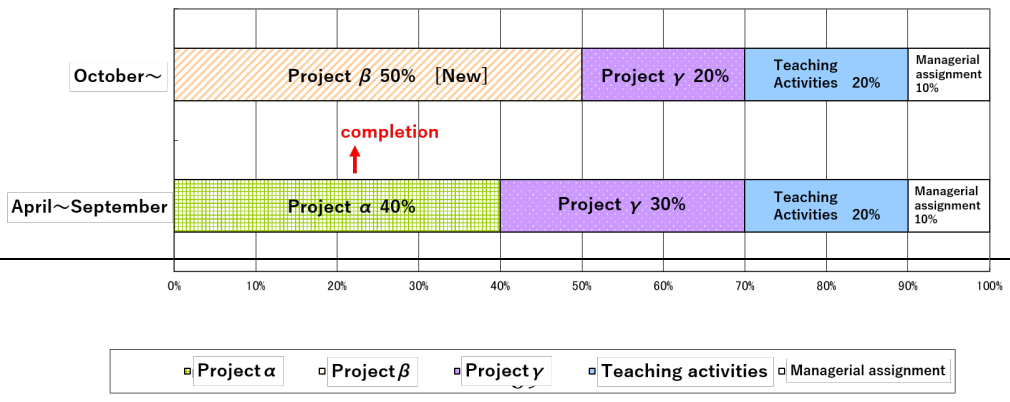
How "effort" should be understood

Definition of "effort"

- According to the third-term science and technology basic plans, "effort" is defined as "the distribution of time during which an individual engaging in research manages research, education, management, and/or the like."
- When a researcher proposes a research project, he or she needs to describe the distribution of his or her time required to implement the research as opposed to the time that is taken for his or her total work."*
- The total work time includes the time for research activities and the time for teaching and management activities.

- The amount of "effort" may vary depending on the review, assessments, or the like of a research project.

  Ex. Project α is canceled halfway in the fiscal year and Project β is adopted. The state of the distribution of the total work time is as shown here. (Project γ continues for one year.)



・In this example, Project α is canceled at the end of September (40% distributed). Project β start as a new one in October (50% distributed). The "effort" in Project γ varies from 30% to 20%.

*"Guideline for Proper Implementation of Competitive Funds" (an agreement at the liaison committee of relevant governmental bodies concerning competitive funds, revised on June 22, 2017)

○ Providing information on the contents of an application to prevent irrational duplications and extreme convergences

In order to prevent irrational duplications and extreme convergences, we may provide information, within the scope necessary, on part of the contents of an application (or the adopted problem or the program) to the personnel in charge of other competitive funds including other governmental bodies by way of the Cross-ministerial R&D Management System (e-Rad). In addition, we may provide information in the same manner when we are asked to confirm the above-mentioned for other competitive funds.

○ Appropriate reports made to affiliated institutions

In addition to information concerning research funds and additional work, we ask that any information necessary to ensure the transparency of all the research activities in which you are involved, including information relating to donations and information about non-financial support offered through facilities or equipment, is reported to affiliated institutions in an appropriate manner. When you apply, the details of what constitutes an appropriate report to an affiliated institution will be confirmed. You may also be required to confirm the current situation regarding the affiliated institution's understanding and management of this information. Please note that following the revision of the "Guidelines Concerning Proper Utilization of Competitive Funding" (agreed upon by the coordination committees of relevant ministries and agencies for competitive research funding, revised on June 22, 2017) planned for FY2021 based on the "Policy

on Measures to Ensure Research Integrity Against New Risks as a Consequence of the Globalization and Openness of Research Activities" (April 27, 2021, Decision of Council for Science, Technology and Innovation), information about the detailed handling of information/reports will be clarified separately.

5.4 Acceptance status of applications for other competitive funds, including from other governmental bodies

The PMs who describe the application forms, in order to prevent irrational duplications and extreme convergences, differently from the facts may not be adopted, may have their adoption canceled, or may have their funds reduced.

5.5 Managing unjustifiable use and reception

As for the unjustifiable use and reception funds for implemented problems (referred to as "unjustifiable use" from here), the following applies strictly.

○Measures when an unjustifiable use of research funds is recognized

(i) Canceling contracts and other measures

The R&D agreement will be canceled or altered with respect to the problem in relation to which an unjustifiable use or the like has been recognized. We will demand the entire or partial refund of the R&D funds. In addition, we may not renew the contract in the next fiscal year or after.

(ii) Measures to restrict the qualification for application or participation *1

The measures for restricting the qualification for applying to this program or participating in it, or the measures for strict warning, are issued, as shown in the table below, depending on the degree of the unjustifiable act of the researchers *2 who violated the due care of a prudent manager without being recognized or directly involved with the researchers who engaged in the unjustifiable use of R&D funds from this program (referred to as "the researchers who engaged in unjustifiable use").

In addition, applications and participation may be restricted in other competitive funds, including other governmental bodies by providing a synopsis of the applicable

unjustifiable use to the personnel of the other competitive funds, including other governmental bodies and incorporated administrative agencies under the jurisdiction of other governmental bodies. The synopsis would include the name of the researcher who made an unjustifiable use, the title of the project, the organization to which he or she belongs, the problem to be solved by the research, the amount of the budget, the fiscal year of the research, the details of the misconduct, and details of the measures provided.

*1. "Applications and participation" refer to proposing a new task, applying for calls, and making applications to participate in a new research project as a joint researcher group or to participate in ongoing research to solve a problem (continuing problem) as one of the R&D personnel, as a joint researcher or otherwise.

*2. "The researchers who violated the due care of a prudent manager" refers to the researchers who violated the obligation to advance the program with the due care of a prudent manager even if they are not recognized so much as involved in the unjustifiable use.

<table>
<tr><th>The people within the restriction on an application due to unjustifiable use or reception</th><th colspan="2">The degree of unjustifiable use</th><th>The period to restrict applications *3</th></tr>
<tr><td rowspan="4">The researchers who engaged in unjustifiable use or the researchers conspired to make such use
*1</td><td colspan="2">Private misappropriation for acquiring personal profits</td><td>10 years</td></tr>
<tr><td rowspan="3">2. Other than 1</td><td>① A case whose social influence is large and the viciousness of the act is judged to be high</td><td>5 years</td></tr>
<tr><td>② Other than ① and ③</td><td>2 – 4 years</td></tr>
<tr><td>③ case whose social influence is small and the</td><td>1 year</td></tr>
</table>

		viciousness of the act is judged to be low	
The researchers who used other unjustifiable means to receive the competitive funds and the researchers who conspired to do so			5 years
The researchers who were not directly involved in the unjustifiable use but violated the duty of the due care of a prudent manager *2			Two years at the maximum to one year at the minimum depending on the degree of the violation of the researcher who was obligated to show the due care of a prudent manager

A strict warning is issued under any of the following conditions without restricting application or eligibility for participation.

*1. In the case of Item 1, the influence over society is minor, the malignancy of the act is minor, and the amount of unjustifiable use is small;

*2. In the case of Item 3, the influence over society is minor, and the malignancy of the act is minor;

*3. The period to restrict applications will, in principle, begin from the fiscal year following the year in which the unjustifiable use was recognized and the research fund was paid back. Qualification for participation is also restricted in the year in which the unjustifiable use was recognized.

(iii) Disclosing unjustifiable cases

In this program, among the researchers who engaged in the unjustifiable use of R&D funds, the researchers who have violated the due care of a prudent manager, and the researchers whose qualification for application and participation in this

program is restricted will be, in principle, disclosed by JST in the synopsis of the applicable unjustifiable cases or the like. The synopsis includes the researcher, the title of the project, the organization to which he or she belongs, the fiscal year of the research, the contents of the unjustifiable act, and the contents of the measures provided). The researchers will be disclosed by the MEXT with respect to the synopsis of the applicable unjustifiable cases or the like (including the title of the project, the organization to which the researcher belongs, the fiscal year of the contents of the unjustifiable act, and the contents of the measures provided).

In addition, according to the "Guidelines for the Management and Audit of Public Research Funds In Research Institutions (practice standards)," if an unjustifiable act is recognized as a result of an investigation, the research institution is supposed to disclose the results of the investigation promptly; each institution is asked to take proper action based on the guidelines.

*For an overview of the unjustifiable cases disclosed on the website of MEXT as of present, access the following URL.

https://www.mext.go.jp/a_menu/kansa/houkoku/1364929.htm

5.6 Measures for researchers whose applications and qualifications for participation are restricted in other competitive funds

The researchers who are restricted due to an unjustifiable use of research funds, in other competitive funds* under management of a national governmental body or an incorporated administrative agency, are restricted from making an application or qualifying to participate in this program during the period in which they are restricted from qualification and application in other competitive funds.

"Other competitive funds" include those that start new calls in the fiscal year 2022 or later. The systems that were terminated in the fiscal year 2021 or earlier are also included.

*For the specific systems currently within the scope, access the following website.

https://www8.cao.go.jp/cstp/compefund/ (Competitive funds)

5.7 Measures for violations of relevant laws

If relevant laws and/or ordinances, guidelines, and/or the like are violated to implement

an R&D project, there will be consequences and/or punishment based on the applicable laws, ordinances and/or the like, the R&D funds may be suspended, and/or the decision on the distribution of the R&D funds may be canceled.

5.8 Retaining receipts for indirect costs and reporting on use results

If R&D institutions receive payments for indirect costs, they must undertake appropriate management of the indirect costs and retain the documents that prove the appropriate payments for indirect costs, such as receipts and the like, for five years from the fiscal year following the completion of the project.

In addition, the R&D institutions etc. that have received the payment for the indirect cost need to make a report to JST by June 30 in the next fiscal year on the results of the usage of the indirect cost (if an R&D institution have acquired two or more competitive funds, report all indirect costs from such competitive funds). If you do not know how to operate e-Rad for reporting, refer to e-Rad Operation Manual (https://www.e-rad.go.jp/manual/for_organ.html) or "Frequently Asked Questions" (https://qa.e-rad.go.jp/)

5.9 Carrying over

In the case that a multi-year contract will continue until the following fiscal year, Carry-overs may be allowed up to the end of the next fiscal year at the latest if it proves difficult to complete the expenditures within the fiscal year because it is unavoidable. It may be due to the difficulty of the investigation before a research test or in the decision on the R&D method, various conditions for plans or designing, the weather, difficulty in procuring materials, or other reasons.

5.10 Cross-ministerial expenses handling partitioned table

In this program, the cost structure is determined based on the cross-ministerial cost categorization table that is to be commonly used for competitive funds. For the handling of costs, please refer to the website including the information of cross-ministerial cost categorization table.

(for universites) https://www.jst.go.jp/contract/moonshot/2021/moonshota.html

(for companies) https://www.jst.go.jp/contract/moonshot/2021/moonshotc.html

In response to the "The 6th Science, Technology, and Innovation Basic Plan", "Integrated Innovation Strategy 2020", and the "Comprehensive package to strengthen research capacity and support young researchers," the system for competitive research funding is being improved. Based on this, the project is intended to subsidize a PM and performer in the payment of personnel cost and costs for delegated work other than research (buyout costs) from direct costs. Regarding the payment of a PM and performer's personnel cost and costs for delegated work other than research (buyout costs), check the below for requirements.

○"Introduction of a buyout system to make it possible to pay delegated-work costs (costs for non-research work delegated to others) from direct costs and the payment of PI personnel cost from direct costs (correspondence)" (September 17, 2020)"
https://www.jst.go.jp/osirase/2020/pdf/20200917.pdf

5.11 Diversion of expenses

The amount of funds that can be used for purposes outside the scope of an account title without approval from JST is 50 percent or less of the total direct cost.

5.12 Securing the R&D period until the fiscal year end

JST requires that researchers who have received competitive funds of any kind must complete the tasks listed below in order to continue their JST-funded research until the end of a fiscal year.

(1) JST inspects the completion of the project and the achievements of the research.
(2) Submit a report on the results of the accounting by May 31.
(3) Submit a report on the achievements of the research by May 31.

Each R&D institution should organize the necessary systems at the institution for those practices in order to secure the R&D period that continues at the end of a fiscal year.

5.13 Promotion of sharing research facilities and equipment

According to the "Renovation on the Competitive Research Funds for the Continuous Creation of Research Achievements (Midterm Summary) (Examination Meeting on the Renovation of Competitive Funds, June 24, 2015), it is appropriate that relatively large-scale facilities and equipment that have high general-purpose performance should be, in principle, shared so that original research objectives can be sufficiently accomplished.

In addition, according to the "Introduction of a New Research Facility/Equipment Sharing System Integrated with the Management of Research institutions" (Advanced Research Platform Group, Council for Science and Technology, November 2015), it is desirable that universities, colleges, national research and development agencies, and the like use "a system to share research facility/equipment by the unit of a research organization" (referred to as "equipment sharing system" from here). “Research Ability Improvement Reform 2019” (Ministry of Education, Culture, Sports, Science and Technology, April 23, 2019) and “Comprehensive package to strengthen research capacity and support young researchers” (Council for Science, Technology and Innovation, January 23, 2020) also stress the promotion of the development and sharing of research facilities and equipment.

R&D institutions must endeavor to share the particularly large and general-purpose-performance research facility/equipment purchased for this program as long as it is within the scope of research and does not present obstacles to applicable research projects. This applies to research facility/equipment purchased with other research funds and for purchasing/sharing them; a total of two or more research funds based on what is stated above within the scope of the management conditions of other research funds. Note the necessity to maintain a balance between the management of shared equipment/facility and the use of the equipment for the achievement of the research objectives of an applicable research project.

Moreover, besides the equipment-sharing system stated above, endeavor to cooperate with the "University Collaboration and Research Facility Networking Project," implemented for the nationwide mutual usage of the facilities by National Institutions of Natural Sciences, as well as the “Program for supporting introduction of the new sharing system” and “Program for supporting core facilities” used by universities to promote the joint use of research facilities and equipment beyond the framework of research organizations and

R&D institutions.

- "Introduction of a New Research Facility/ Integrated with the Management of Research Institution" (Advanced Research Platform Group, Council for Science and Technology; November 25, 2015).
  https://www.mext.go.jp/component/b_menu/shingi/toushin/__icsFiles/afieldfile/2016/01/21/1366216_01_1.pdf
- "Renovation on the Competitive Research Funds for the Continuous Creation of Research Achievements (Midterm Summary)" (Examination Meeting on the Renovation of Competitive Funds, June 24, 2015)
  https://www.mext.go.jp/b_menu/shingi/chousa/shinkou/039/gaiyou/1359306.htm
- About unifying the rules for various office procedures of competitive funds" (Agreed upon by the coordination committees of relevant ministries and agencies on competitive funds, revised on March 5, 2021)
  https://www8.cao.go.jp/cstp/compefund/toitsu_rule_r30305.pdf
- Purchase of shared facilities under multiple research funding systems (combined use) (Agreed upon by funding agencies and relevant ministries and agencies, September 10, 2020)
  https://www.mext.go.jp/content/20200910-mxt_sinkou02-100001873.pdf
- "University and College Cooperation Research Facility Network Project"
  https://chem-eqnet.ims.ac.jp/
- "Program for supporting introduction of the new sharing system"" Program for supporting core facilities"
  https://www.jst.go.jp/shincho/program/pdf/sinkyoyo_brochure2020.pdf

5.14 Improving the treatment of doctoral students

The "6th Science, Technology, and Innovation Basic Plan" (determined by the Cabinet on March 26, 2021) sets out the numerical target of tripling the current number of students in the second half of their doctoral course who receive payment equivalent to living expenses (around 30% of students in the second half of their doctoral course are granted an amount roughly equivalent to living expenses) in order to enhance economic support for graduate students, especially students in the second half of their doctoral

course, so as to attract excellent students and mature students from within Japan and overseas. It states, “in order to promote the payment of salaries to doctoral students at an appropriate level as a research assistant (RA) from competitive research funds and joint research funds, the government will formulate rules for the payment of RA expenses relating to employment and remuneration for RAs at each R&D program and university, and implement them sequentially from FY2021,” and demands wider employment and improved treatment of doctoral students as RAs, etc., in each university and R&D organization.

The “Guideline for the Employment and Education of Post-Doctoral Researchers” (Committee on Human Resources, the Council for Science and Technology, December 3, 2020) states that “Postdoctoral course students are also researchers in a sense, and therefore ensuring an environment and support system suitable for them is an important duty of the universities nurturing them,” “it is especially important to set rewards according to the nature and contents of their work, pay them salaries according to their work hours under an appropriate work management and appropriately assess their research contribution,” and “it is necessary at universities and other institutions that an proponent for a competitive research funding can request the subsidization of research assistant (RA) employment cost as a direct cost and also to review school provisions so that appropriate rewards are provided to RAs.”

Based on these, it is recommended that doctoral course students necessary for implementing R&D in the project be proactively employed as RAs, unit prices be set according to the nature and contents of their work and their salaries be paid according to work hours under an appropriate work management. When applying for this program, you should include the amount of salary paid to these doctoral students in the financial planning.

- In the 6th Science and Technology Basic Plan, an annual salary of JPY 1.8 million is reasonable for covering living expenses, as well as the research incentive allocated to the researcher in the Research Fellowship for Young Scientist(DC) to allow outstanding Ph.D. students to concentrate on their research without feeling financial anxiety.
- Regarding the treatment of post-doctoral students for implementing the research

project, the "Guideline for the Employment and Education of Post-Doctoral Researchers" states that "considering the average salary of specially appointed assistant professors employed through competitive research funds, an hourly payment of 2,000 to 2,500 yen* should be the standard salaries of such students."

*In view of the average salary of specially appointed assistant professors employed through competitive research funds, it is conceivable that a payment of 2,000 to 2,500 yen an hour will become standard for doctoral students in the second half of their course. (In the "Employment Status of Instructional Staff at 18 Research Universities (quick summary edition)" published in August 2020, the average monthly salary of specially appointed assistant professors was in the 400,000–450,000 yen range. These figures were divided by the working hours (7 hrs. 45 min to 8 hrs.) of actual working days (19 to 20), excluding holidays, etc., then, considering the status of second-half doctoral-course students, this was multiplied by 0.8.)

- The actual amount of salary and payment period will be decided by the R&D institution. It does not limit payment above or below the above levels.
- When hiring students as RAs, etc., you need to avoid excessively long working hours and consider the balance between the work and study/learning time of doctoral students.

5.15 Ensuring self-sustaining, stable research environment for young researchers

The importance of securing a term of about 5 years or more for the fixed-term post assigned to research assistants and postdocs. etc.is pointed out in "Research Ability Improvement Reform" (Ministry of Education, Culture, Sports, Science and Technology, April 23, 2019) and "Development of Science, Technology and Innovation Policies for Knowledge-based Value Creation - Leading the World by Realizing Society 5.0 - Final summary" (The Special Committee on Comprehensive STI Policy, Council for Science and Technology, March 26, 2020) because short-term employment could be an obstructive factor in career development.

In regard to national university corporations and inter-university research institute corporations,"Guidelines for reform of personnel and salary management in national

university corporations, etc. -Toward building attractive personnel and salary management effective for improving education and research capabilities-" (Ministry of Education, Culture, Sports, Science and Technology, February 25, 2019) states ”To meet two requirements, “fostering young teachers and securing stable employment,” it is desired to promote an institutional design which takes into account the development of researchers while maintaining mobility, for example, by securing a certain period of employment, in the order of 5 to 10 years, even in fixed-term posts using highly flexible expenses such as indirect costs or donations.”

Based on these points, when the project in this program hires young researchers such as research assistants or postdocs, a certain period of employment (5 years or more) should be ensured as much as possible with an attempt to secure the period up to the stage-gate as the length of term by using external funds including indirect costs, basic research funds and donations, etc. while making confirmation with the personnel and accounting staff at the administrative departments.

5.16 Voluntary research activities of young researchers employed for implementing the project

On the basis of the “Policies for the Voluntary Research Activities of Young Researchers Employed for the Implementation of the Project with Competitive Research Funds” (policies concerning competitive research funds—policies agreed to at a liaison meeting of related ministries and agencies, revised on December 18, 2020), when an affiliation of an R&D Principal Investigator (PI) judges that young researchers employed from the budget of the R&D project should conduct voluntary research activities to contribute to the improvement of their own research and management capabilities, and that such activities will not become an obstacle to the promotion of the project, part of their efforts regarding the project can be allocated for the activities and their personnel cost regarding the activities can also be refunded from the budget.

Please see below for details.

○ Regarding the voluntary research activities of young researchers employed for implementing the project (correspondence)” (April 10, 2020)

https://www.jst.go.jp/osirase/2020/pdf/20200414.pdf

*Human resources development etc. are included in the purpose of the Moonshot R&D program.

5.17 Supporting various career paths for young researchers

In “Basic Policy for Supporting Various Diverse Career Paths of Young Post-doctoral Researchers Employed with Public Research Funds of the Ministry of Education, Culture, Sports, Science and Technology (MEXT)” (Human Resources Committee, Council for Science and Technology, December 20, 2011), it is requested that public R&D institutions employing young post-doctoral researchers with public research funds and R&D principal investigators should actively work for young post-doctoral researchers to secure various career paths in Japan and abroad. The “6th Science, Technology, and Innovation Basic Plan” (determined by the Cabinet on March 26, 2021) also sets goals relating to the “enhancement of career paths and mobility” to the industrial sector. Moreover, the “Guideline for the Employment and Education of Post-Doctoral Researchers” (Committee on Human Resources, the Council for Science and Technology, December 3, 2020) states, “it is vital that post-doctoral human resources who have advanced expertise and excellent research capabilities play active roles in diverse sectors of society, including in venture companies and in global companies, and create innovation; therefore, initiatives that work toward diversifying their career paths after their time as post-doctoral researchers are important.” Based on the understanding of these circumstances, when the R&D project, adopted by this program, employs young researchers such as special-appointment or post-doctoral researchers with allocated public research funds (competitive funds, other project research funds, or public research funds for universities), special efforts for supporting these researchers to obtain diverse carrier paths are requested. Use of indirect costs for these efforts may be considered.

5.18 Secure trade control (managing technology leaks overseas)

At R&D institutions, many kinds of state-of-the-art technology are studied. Especially in universities and colleges, internationalization has increased the number of international students and researchers from foreign countries, which has increased the risk of leaking

advanced technology, research materials, and research equipment. These entities may increasingly be used viciously for the development or production of weapons of mass destruction. Therefore, for R&D institutions to advance each type of research activity, including applicable R&D, R&D institutions must organize their management so that R&D results that may be used for military purposes cannot be transferred to parties, such as developers of weapons of mass destruction and terrorist groups, that may engage in suspicious activities.

In Japan, trade is controlled (*) based on the Foreign Exchange and Foreign Trade Act (law No. 228, 1949, referred to as the "Foreign Exchange Act" from here). Therefore, in principle, it is necessary to acquire permission from the Minister of Economy, Trade, and Industry in order to export (provide) freight or technology under the restriction of the Foreign Exchange Act. Observe the Foreign Exchange Act and other national laws and ordinances, guidelines, and notifications. If research is conducted in violation of relevant laws, ordinances, guidelines, and/or the like, it will be subject to consequences and/or punishment based on the applicable laws and/or ordinances and/or the like; the R&D funds may be suspended and/or the decision on the distribution of the R&D funds may be canceled.

(*) Currently, Japan’s security export control system is based on international agreements and the like and consists mainly of: (i) the system (list system) that requires permission from the Minister of Economy, Trade, and Industry, in principle, in order to export (provide) freight (technology) that has a certain level of specifications and/or functions, such as carbon fiber and numerically controlled machine tools; and (ii) the system (catch-all control) that requires permission from the Minister of Economy, Trade, and Industry if certain requirements (for purposes, consumers, or information) are satisfied for the export (provision) of freight (technology) not included in the list.

Not only the export of goods but also the provision of technology is a subject of control by the Foreign Exchange Act. If technology under the list control is to be provided to a non-resident or in a foreign country, permission is necessary in advance. Providing technology here includes providing work knowledge by way of technical guidance, skill training, and technical support at seminars; it includes using paper, email, CDs, DVDs, and USB memories as storage media to provide designs, specifications, manuals, specimens,

test products, or other technical information. Accepting international students from foreign countries and activities for joint research may include many technical exchanges that may be subject to the Foreign Exchange Act.

Please note that the export (provision) of technology acquired through the program may also be subject to regulations. By the time the contract is signed, we will confirm whether the export of goods or technologies subject to the export control laws of the Foreign Exchange and Foreign Trade Act is planned through this program, and if so, whether a control system is in place. Please note that if you intend to export technology and do not have a control system in place, you will be required to submit a written pledge to establish a system prior to the export or by the end of the project, by the time the contract is signed. The status of the confirmation may be reported to the Ministry of Economy, Trade and Industry upon its request. In addition, the contract may be cancelled in whole or in part if any violation of regulations related to the Foreign Exchange and Foreign Trade Act is found with regard to the technology and other components acquired through this program.

The details of controlling security in trade are published on the website of the Ministry of Economy, Trade, and Industry. For more information, see the following:

- Ministry of Economy, Trade, and Industry: Security Trade Control (in general)
  https://www.meti.go.jp/policy/anpo/
- Ministry of Economy, Trade, and Industry: Security Trade Control Handbook
  https://www.meti.go.jp/policy/anpo/seminer/shiryo/handbook.pdf
- Center for Information on Security Trade Control
  https://www.cistec.or.jp/index.html
- Ministry of Economy, Trade, and Industry: Sensitive Technology Control Guide for Security Trade Control (for universities, colleges, and R&D institutions)
  https://www.meti.go.jp/policy/anpo/law_document/tutatu/t07sonota/t07sonota_jishukanri03.pdf

5.19 The strict implementation of United Nations Security Council Resolution 2321

In light of North Korea's September 2016 nuclear test and successive ballistic missile launches, on November 30, 2016 (local time, New York), the United Nations Security

Council (hereinafter the “Security Council”) adopted Security Council Resolution 2321, which imposed additional and stronger sanctions on North Korea. In connection to this, on February 17, 2017, MEXT issued the “(Request for the) Strict Implementation of United Nations Security Council Resolution 2321,” (28 受文科際第 98 号) to all relevant institutions.

According to section 11 of the text of this resolution, “Science and Technology Cooperation” is not limited to technology that is restricted by the Foreign Exchange Act—it includes all cooperation, with the exception of cooperation that aims for medical exchange, and it is important that R&D institutions pay attention to the strict implementation of this resolution when carrying out different research activities, including applicable consigned research.

For more information on Security Council Resolution 2321, see the following:

○ Ministry of Foreign Affairs: United Nations Security Council Resolution 2321, Japanese translation (Notification no. 463 of the Ministry of Foreign Affairs (issued December 9, 2016))
https://www.mofa.go.jp/mofaj/files/000211409.pdf

5.20 Promoting dialog with society and collaboration

According to "About the Promotion of 'Science/Technology Dialog with Citizens'" (Guideline for Basic Endeavors; decision by the minister of science and technology policies and the members of Diet with expertise, June 19, 2010), if your proposal is adopted in this call and you accept 30 million yen or more of public funds a year per project (competitive or project research funds), the attitude in which the excellent achievements of science and technology are constantly produced and the achievements of science and technology should be returned to our citizens to further develop science and technology in our country. Science and technology are advanced because of the understanding and support of citizens; therefore, "Science/Technology Dialog with the Citizens" is essential. In addition, the Fifth Term Science and Technology Basic Plan (Cabinet decision, January 22, 2016), seeks that the conventional type of relationship between science and technology and society, as positioned against each other, should become one of promoting "collaborative creation." This includes dialog and collaboration among researchers, citizens, media, industry, policy

makers, and other various stakeholders. We want you to endeavor to explain the content of research activities and achievements to society and citizens in an easy-to-understand way and to promote dialog/collaboration among various stakeholders.

You are asked to take a positive attitude toward the activities of this program, including the lecture sessions for citizens on research achievements, the continuous distribution of information on research achievements at the symposiums and over the internet, and at the roundtable conferences involving a variety of stakeholders.

(Informative) Promoting "Science/Technology Dialog with Citizens" (principles for basic measures)
https://www8.cao.go.jp/cstp/stsonota/taiwa/taiwa_honbun.pdf
(Informative) Fifth Science and Technology Basic Plans
https://www8.cao.go.jp/cstp/kihonkeikaku/5honbun.pdf

5.21 Open access and data management plan

JST announced the basic policy for handling R&D achievements towards the promotion of open science in April 2017. The policy covers the basic concepts for allowing one's access to papers on R&D achievements and archiving, as well as on managing and disclosing R&D data.

In principle, researchers participating in this Moonshot R&D program are mandated to make the produced documents on R&D achievements available to the public via the repository organizations or publications for open access. A leader's institution (PM's institution) is also requested to prepare a data management plan (DMP). This DMP should contain details on policies and plans for archiving, managing, and publishing, or the non-disclosure of research data, which are being developed for achievements. A leader's institution must also submit the DMP, along with the R&D plan document to JST. It is also mandatory to undertake archiving, managing, and publication of research data based on this DMP. The DMP can be changed through the course of R&D implementation.

Please see the following for details:

○ JST Policy on Open Access to Research Publications and Research Data Management :

https://www.jst.go.jp/EN/about/openscience/policy_openscience_en.pdf

○ Implementation Guideline: JST Policy on Open Access to Research Publications and Research Data Management:
https://www.jst.go.jp/EN/about/openscience/guideline_openscience_en.pdf

In addition, in the Moonshot R&D Program, PMs are required to establish a DMP based on the “Guidelines for the Operation and Evaluation of the Moonshot R&D Program” (Attached Document 2). Based on the DMP, researchers are required to aggregate the metadata of the data to be managed and submit the aggregate as a data management report every fiscal year.

Explanation of Metadata in the Moonshot R&D Program, Version 2
https://www8.cao.go.jp/cstp/ms_metadatainstructions.pdf

JST analyzes statistic data including the number of data modules, types of data, types of publication and place of data storage aiming for the confirmation of entered data, support of researchers, and feedback to the basic policy (revision). The analyzed data is released to the public but the data available for tracing personal information such as name is strictly held back.

* For the items described in a data management plan, see also section 4.7, “The Items the PMs and Performers Should Note regarding Their Contacts,” paragraph (5), item c.
* For the bioscience data, also see “5.22 Open data from the Bioscience Database Center”.

5.22 Open data from the Bioscience Database Center

The National Bioscience Data Center (NBDC) (https://biosciencedbc.jp/) was established in April 2011 under the jurisdiction of the Japan Science and Technology Agency to promote the integrated use of the Life Science Database, which was created by a variety of research institutions. According to "The Progress of the Project to Promote the Integration of the Life Science Database and Its Orientation in the Future" (January 17, 2013), the center, as a leader, is supposed to expand the applicable projects to use the data and database.

You are asked to cooperate with us in the disclosure, from the center, of the following types of data and databases that may be collected from this program.

No.	Type of the data	Disclosed to	URL for Disclosure
1	Overview of the Database Constructed for Disclosure	Integbio Database Catalog	https://integbio.jp/dbcatalog/
2	Copies of the databases of the results disclosed in papers or copies of the databases constructed for disclosure	Bio Science Database Archive	https://dbarchive.biosciencedbc.jp/
3	The ones related to human beings from Item 2	NBDC Human Database	https://humandbs.biosciencedbc.jp/

<Inquiry Office>

Bio Science Database Center, Japan Science and Technology Agency

Phone: 03-5214-8491

e-mail: nbdc-kikaku@jst.go.jp

5.23 Guidelines for writing acknowledgements

When publishing the research results from this program, please indicate that you have received our fund. Please include "[Moonshot R&D Program] Grant Number [10 digits (JPMJMS + 4 digits of project number)] in the Acknowledgment of the paper. Example of Acknowledgement in English is as follows:

This work was supported by JST [Moonshot R&D Program] Grant Number [JPMJMSxxxx].

* If such results are made with multiple funding programs, please indicate all program names and systematic numbers.

5.24 Reforming competitive research expenses

Currently, the government is discussing institutional improvement of competitive research funds for more effective and efficient use of R&D costs based on “The 6th Science, Technology, and Innovation Basic Plan”, “Integrated Innovation Strategy 2020” and “Comprehensive package to strengthen research capacity and support young researchers.” If the government indicates a policy for the institutional improvement and operation common to other competitive funding program during the open call period, we will inform

you when applying the policy to the open call and operation.

5.25 Guidelines for the management and audit of public research funds in research institutions (practice standards)

(1) Organize the institution according to the "Guidelines for the Management and Audit of Public Research Funds In Research Institutions (practice standards)"

R&D institutions, etc. that are applying to this program and researchers need to observe the contents of the "Guidelines for the Management and Audit of Public Research Funds at Institutions (standard for implementation)" (revised on February 1, 2021)

R&D institutions, etc. must try to properly execute the research funds by organizing a system for managing and auditing the research funds under their responsibility based on the guidelines mentioned above. As a result of the investigation of the status of the organization based on the guidelines, if MEXT recognizes a fault in the relevant status of an institution, then the measures for reducing its indirect cost from all the competitive funds distributed by MEXT or an incorporated administrative agency under the jurisdiction of the MEXT may be taken with respect to the applicable institution.

*1 For "Guidelines for the Management and Audit of Public Research Funds in Research Institutions (practice standards)," access the following website.

https://www.mext.go.jp/a_menu/kansa/houkoku/1343904_21.htm

(2) "Self-evaluation Checklist for Structuring Organizations" based on "Guidelines for the Management and Audit of Public Research Funds in Research Institutions (practice standards)"

To enter into a contract in this program, each R&D institution, etc. must structure their organization so that it manages and audits the research funds based on the above-mentioned guidelines and must submit the "Self-evaluation Checklist for Structuring Organizations," which is a report on its status (referred to as "checklist" from here). Research cannot be implemented until a checklist has been submitted.

Therefore, until the designated date before the contract begins, it is necessary to submit a check list of fiscal year 2022 via the Cross-ministerial R&D Management System (e-Rad) from the R&D institutions etc. to the Competitive Funds Control Office, Research

Environment Section, Research Promotion Bureau, MEXT after April 1st, 2022. Please note that, regardless of the above, there is an acknowledged contract with R&D institutions, etc., that have submitted the FY2021 research misconduct checklist; in this case, your institution should submit the FY2022 research misconduct checklist by December 1, 2022.

Further, you do not need to apply if your organization is not engaged in research activities or, if it is engaged in such activities but does not accept funds from MEXT or an incorporated administrative agency under the jurisdiction of MEXT.

For details on how to submit the checklist, access the following website of the MEXT.

(The web page below contains content relating to the checklist for FY2021. Please check the MEXT website from April 2022 for the checklist for FY2022.)

https://www.mext.go.jp/a_menu/kansa/houkoku/1301688.htm

*Note: You are required to make e-Rad available. Note that it normally takes about two weeks to register the research institution. For details on the procedure for using e-Rad, access the following website.

https://www.e-rad.go.jp/organ/index.html

The standard guideline promotes the "communication of information and the commonization." Therefore, it is asked for the R&D institutions etc. to post the check list on a website or the like for proactive communication of information.

5.26 Guidelines for responding to misconduct in research

(1) Structure organizations based on the "Guidelines for Responding to Misconduct in Research"

The R&D institutions etc., in applying for this program and implementing research activities must observe the "Guidelines for Responding to Misconduct in Research" (decision, Minister of Education, Culture, Sports, Science, and Technology, August 26, 2014)*1.

As a result of an investigation into the status of an organization based on the guidelines mentioned above, if MEXT recognizes an error in the status of the applicable institution, then measures for reducing the indirect cost of the competitive funds distributed by the MEXT or an incorporated administrative agency under the jurisdiction of MEXT may be

taken against the applicable institution.

*1. For the "Guidelines for Responding to Misconduct in Research," access the following website.

https://www.mext.go.jp/b_menu/houdou/26/08/1351568.htm

(2) Submitting a checklist on the status of the endeavors based on the "Guidelines for Responding to Misconduct in Research"

To enter into a contract in this program, the R&D institutions must submit a checklist on the status of their endeavors based on the "Guidelines for Responding to Misconduct in Research" (referred to "research misconduct checklist" from here). They will not be allowed to implement research until the research misconduct checklist has been submitted.

Therefore, until the contract begins, it is necessary to submit a research misconduct check list by using the Cross-ministerial R&D Management System (e-Rad) from the R&D institutions that conduct R&D to the Research Fairness Promotion Office, Research Environment Section, Research Promotion Bureau, MEXT after April 1st, 2022.Please note that, regardless of the above, there is an acknowledged contract with R&D institutions, etc., that have submitted the FY2021 research misconduct checklist; in this case, your institution should submit the FY2022 research misconduct checklist by September 30, 2022. Further, you do not need to apply if your organization is not engaged in research activities or if it is engaged in such activities but does not accept funds from the MEXT or an incorporated administrative agency under the jurisdiction of MEXT.

For details on how to submit a research misconduct checklist, access the following website of MEXT.

(The web page below contains content relating to the checklist for FY2021. Please check the MEXT website from April 2022 for the checklist for FY2022.)

https://www.mext.go.jp/a_menu/jinzai/fusei/1420301_00001.htm

*Note: Your institution must make e-Rad available. Note that it normally takes about two weeks to register. For details on the procedure for using e-Rad, access the following website.

https://www.e-rad.go.jp/organ/index.html

(3) Measures for research activity misconduct based on the "Guidelines for Responding to Misconduct in Research."

Strict measures will be taken, as stated below, if any misconduct is performed during research activities in this program.

(i) Canceling contracts and other measures

If a specific type of misconduct (forgery, falsification, or theft) is recognized in an R&D project in this program, the R&D agreement will be canceled or altered depending on the case. We will demand a whole or partial refund of the R&D funds. In addition, we may not enter into a contract in the next fiscal year or after.

(ii) Measures to restrict the qualification for application or participation

We will take measures to restrict the qualification for application and participation in this program, as stated in the table below, depending on the viciousness of specific types of misconduct and the degree of the responsibility of the parties involved in the misconduct and the parties recognized as having a certain degree of responsibility because of their obligation to use caution with the applicable papers, reports, and the like even if they were not directly involved in research papers, reports, etc. in this program.

In addition, if measures for restricting the qualification for application or participation are taken, the qualification for application and participation may be restricted in the same manner in the competitive funds of MEXT and the competitive funds of the other governmental bodies; the information will be provided to the personnel of the competitive funds distributed by MEXT and the incorporated administrative agencies under the jurisdiction of the MEXT (referred to as "the competitive funds in relation to the MEXT" from here). It will also be reported to the personnel of the competitive funds distributed by other governmental bodies and the incorporated administrative agencies under their control (referred to as "the competitive funds of other governmental bodies" from here).

<table>
<tr><th colspan="3">Persons restricted from application due to a specific type of misconduct</th><th>The degree of the specific type of misconduct</th><th>The period of restricted applications *</th></tr>
<tr><td rowspan="3">The person involved in a specific type of misconduct</td><td colspan="2">1. The person’s misconduct is especially vicious; for example, if he or she intended to perform misconduct from the beginning of the research project</td><td></td><td>10 years</td></tr>
<tr><td rowspan="2">2. The author of the paper or the like in relation to the research in which a specific type of misconduct occurs</td><td rowspan="2">The author who takes responsibility for the applicable paper or the like (the supervisor, representative for the authors, or the person with responsibility equivalent to the above-mentioned person)</td><td>The influence over the development of the research in the applicable field and/or the social influence are significant, and the viciousness of the act is judged to be high</td><td>5 – 7 years</td></tr>
<tr><td>The influence over the development of the research in the applicable field and/or the social influence are insignificant, and the viciousness of the act is judged to be low</td><td>3 – 5 years</td></tr>
</table>

<table>
<tr><td rowspan="3"></td><td></td><td>The authors other than the above</td><td></td><td>2 – 3 years</td></tr>
<tr><td colspan="2">3. The persons involved in a specific type of misconduct excluding 1 and 2 above</td><td></td><td>2 – 3 years</td></tr>
<tr><td colspan="3" rowspan="2">The author who takes responsibility for the paper related to the research in which a specific type of misconduct is performed even though he or she is not involved in the misconduct (the person responsible for supervision, the representative of the authors, or the person who is recognized as having responsibility equivalent to the above-mentioned persons)</td><td>The influence over the development of the research in the applicable field and/or the social influence are significant, and the viciousness of the act is judged to be high</td><td>2 – 3 years</td></tr>
<tr><td>The influence over the development of the research in the applicable field and/or the social influence are insignificant, and the viciousness of the act is judged to be low</td><td>1 – 2 years</td></tr>
</table>

* The period of restricted applications will, in principle, begin from the fiscal year following the year in which the specific type of misconduct is recognized to have taken place. The qualification for participation is also restricted in the year when the misconduct is recognized.

(iii) Measures for researchers whose applications and qualifications for participation are restricted from competitive funds and in fundamental costs.

For the researchers whose applications and qualifications for participation are restricted due to misconduct in research activities, the application and qualification for participation in this program are restricted for the same duration as that of the competitive funds of the MEXT, a grant for the operation cost of national university corporations, inter-university research institution corporations, and the independent administrative agencies under the control of MEXT, the fundamental cost from the subsidies to private educational institutions, or the competitive funds of other governmental bodies.

(iv) Disclosing misconduct cases

If any misconduct is performed during research activities in this program, JST, in principle, will disclose a summary of the applicable misconduct case. This will include the name of the researcher, the title of the project, the organization to which he or she belongs, the fiscal year of the research, the contents of the unjustifiable act, and the contents of the measures taken. In addition, MEXT will disclose the contents of the applicable cases (the title of the project, the type of misconduct, the field of research in which the misconduct took place, the title of the funds with which the misconduct was performed, the outline of the misconduct case, the measures taken by the R&D institution, and the measures taken by the organization that distribute the funds).

In addition, according to the above-mentioned guideline, if some misconduct is recognized, the R&D institutions etc. that manage the R&D are supposed to disclose the result of the investigation promptly; each institution is asked to take proper action based on the guideline.

https://www.mext.go.jp/a_menu/jinzai/fusei/1360483.htm

5.27 Obligation to complete research and ethics education and compliance courses

The researchers who participate in an R&D project of this program are supposed to take the research ethics education to prevent misconduct in their research activities, as required in the "Guidelines for Responding to Misconduct in Research." They must also complete

compliance education courses, as required in the "Guidelines for the Management and Audit of Public Research Funds in Research Institutions."

During the procedure for reaching an R&D agreement, which comes after a proposed research challenge is adopted, the PM and the performer need to submit a document to the effect that the researchers and all other participants of the research challenge in Moonshot R&D have taken research ethics and compliance education courses and understood the content.

5.28 Handling information, such as items described in research proposals

The information included in the documents submitted at the time of the proposal will be used for the examination to determine the adoption of an R&D project. In addition, "Form 1" in the proposal will be used for the statistical analysis of research trends to contribute to the operations of JST; individuals will not be identified. The secrets in the content of applications will be strictly kept to maintain the benefits of the proponents and the viewpoints of "the Act on the Protection of Personal Information Held by Independent Administrative Institutions" and others. For details, access the following website.

https://elaws.e-gov.go.jp/search/elawsSearch/elaws_search/lsg0500/detail?lawId=415AC0000000059

In addition, the written proposals of adopted projects may be used by JST to promote R&D after they have been adopted.

5.29 The handling of information on e-Rad

The information on e-Rad about specific adopted projects (the title of the project, the title of the research challenge, the name of the R&D organization, the name of the person in charge of the R&D, the amount of the budget, the period of the implementation, and the overview of the problem) is handled as "the information that is supposed to be published" as defined in Article 5, Item 1-a in the "Act on Access to Information Held by Independent Administrative Agencies" (law No. 140, 2001). The above-mentioned information will be disclosed on the website of Moonshot R&D promptly after the adoption.

5.30 Providing information from e-Rad to the Cabinet Office

In the fifth Science and Technology Basic Plan (cabinet decision, January 2016), in order

to promote the science and technology innovation policy based on objective grounds, evaluations and analyses are supposed to be conducted thorough registration to the Cross-ministerial R&D Management System (e-Rad) with respect to public-invitation funds. The information registered to e-Rad will be used for the appropriate evaluation of R&D with national funds, effective, efficient, and comprehensive strategies, proposals for planning, and the principles for distributing resources. To correspond to that, CSTI and relevant governmental bodies should thoroughly encourage the e-Rad registration of information on achievements, such as papers, patents, and accounting results, in order to link the information on outputs and outcomes to the input of the call type of research funds.

Therefore, it is asked that information on research and accounting results in each fiscal year of the adopted problems be registered to e-Rad.

The information necessary for macro-analysis is provided to the Cabinet Office; it should include information on research and accounting results.

5.31 Registering researcher information to researchmap

One of the largest researcher information databases in the country, researchmap (https://researchmap.jp/) provides a comprehensive view of researchers in Japan, which enables you to disclose information on achievements over the Internet. In addition, researchmap is lined to e-Rad and educator databases at universities. It enables registered information to be used in other systems; therefore, researchers do not need to register the same achievements repeatedly in written declarations and databases.

The information registered to researchmap is effectively used to instigate and check the statistics of proposals for the academic and science and technology policies of the national government. The participants in this program are asked to cooperate and register information to researchmap.

5.32 Patent applications by JST

If an invention or the like is not turned into a right by the R&D institution, JST may do so. Therefore, if the R&D institution does not expect to turn an invention or the like into a right, we want the researcher to submit a quick report of the information on the applicable invention or the like to JST in any form. ("The information on the applicable invention"

stated above refers to the information necessary for JST to judge whether the application is suitable to become a right; it could include a copy of the invention notification used by the R&D institution.)

Based on the received report, JST will deliberate on whether the invention should be turned into a right. If it is judged that JST can apply the invention or the like, the R&D institution and JST will make another contract, "Agreement to Transfer the Right to Acquire a Patent."

5.33 Research support service partnership certification system

" The Development of Policies for Science Technology Innovations for Creating Knowledge-Intensive Values—Japan Leading the World through the Realization of Society 5.0—Final Summary" (the Comprehensive Policy Special Committee of the Council for Science and Technology, March 26, 2020) states that, given the fact that research support and research outcome feedback to the society, which were conventionally implemented as public projects by administrators, have been provided by newly emerging businesses with strong will and passion, a new mechanism for public-private partnership (cooperation between the public and private sectors) needs to be established."

Amid this situation, the Ministry of Education, Culture, Sports, Science and Technology (MEXT) established the "Research Support Service Partnership Certification System" in FY2019. This system, in which the MEXT Minister certifies private businesses' services that satisfy certain requirements, is intended to improve the research environment, promote scientific technologies, accelerate the creation of innovations and support various efforts for research support services in Japan. There are nine certified services as of FY2020.

For details of the certified services, see the following website. Please utilize these services.

https://www.mext.go.jp/a_menu/kagaku/kihon/1422215_00001.htm

5.34 Ensuring research integrity among research institutions

In April 2021, the government determined the "Policy on Measures to Ensure Research Integrity Against New Risks as a Consequence of the Globalization and Openness of Research Activities" (April 27, 2021, Decision of Council for Science, Technology and

Innovation). This policy states, “In order to promote the creation of science, technology, and innovation in Japan, we must continue to strengthen overseas joint research with various partners based on the principle of open science. At the same time, in light of newly emerging risks as a consequence of the globalization and openness of research activities in the recent years, there is a growing concern that the values of openness and transparency which constitute the basis of the research environment will be lost and the danger of researchers unknowingly being trapped in conflict of interest or conflict of responsibilities. In such climate, it is vital for our country to build a globally reliable research environment to protect the values that constitute the basis of research environment while encouraging necessary global collaboration and international exchanges.” Therefore, we ask R&D institutions, etc., to undertake initiatives to ensure research integrity and to make efforts to achieve a common understanding among relevant parties in accordance with the Policy. R&D institutions, etc., may be requested, as necessary, to provide information on the status of their measures for securing research integrity.

○ Policy on Measures to Ensure Research Integrity Against New Risks as a Consequence of the Globalization and Openness of Research Activities (April 27, 2021, Decision of Council for Science, Technology and Innovation)
https://www8.cao.go.jp/cstp/tougosenryaku/integrity_housin.pdf

5.35 Human rights protection and the management of the observance of laws

If a research project that needs to follow the procedure of specific laws and ordinances, such as needing an agreement about cooperation with an opponent, then it will need to consider the handling of personal information. If a research project needs to include life ethics and/or safety measures, then it must acquire approval from the ethics committees in and outside the R&D institution and/or follow necessary procedures. In addition, the laws and ordinances in the relevant countries must be observed when a research activity overseas and/or a joint R&D project with an overseas R&D institution is performed.

In particular, laws and ordinances formulated by each governmental body may be revised with respect to the research in relation to life science. Always confirm the newest version.

Note that laws and ordinances may be formulated with respect to the content of a research project. If a research project is conducted in violation of relevant laws, ordinances, guidelines, and/or the like, the distribution of the research funds may be suspended and/or the decision to distribute the R&D funds may be canceled.
For details on life ethics and ensuring safety, as provided by MEXT, access the following website.

・A forum on life science, "Endeavors for Life Ethics and Safety"
https://www.lifescience.mext.go.jp/bioethics/index.html

If a research project or investigation, which requires an agreement and/or the cooperation of an opponent and/or social consensus, is included in the R&D plan, make sure to provide appropriate measures for handling human rights and the protection of benefits before applying.

Chapter 6 How to use the cross-ministerial R&D management system (e-Rad) for your application

6.1 The cross-ministerial R&D management system (e-Rad)

The Cross-ministerial R&D Management System (e-Rad) brings a series of processes in relation to the management of call-for type research systems (accepting applications > selection > adoption > management of the adopted problems > accepting the registration of research results and accounting results, etc.) online, which is managed by each governmental body.

*”e-Rad” has been abbreviated from “electronic Research and Development”; the first letter of each of these words has been used to create the short form that the Cross-ministerial R&D Management System is referred to as.

6.2 How to use e-Rad for your application

You are supposed to use e-Rad for your application.

For the process flow of your application, see the following instructions.

(1) Registration prior to the use of e-Rad

You need to register the proponent and his or her organization before using e-Rad.

(i) Registering the proponent's organization

The organization to which the proponent belongs must be registered on e-Rad by the time of the application. Appoint one person from the organization to which the proponent belongs as the representative to manage all clerical work on e-Rad. The representative should use the e-Rad portal site (referred to as “portal site” from here) to download the registration form for the R&D institution and apply for registration by postal mail (the proponent must undertake the abovementioned process by himself or herself if he or she belongs to an organization outside Japan or does not belong to any institution). This registration step should be completed at least two weeks prior to the intended start date for using e-Rad because it may take several days to process your registration. Once registration is completed, you do not need to register again

when applying for some other system or program provided by a governmental body, even if you have already finished the registration for the same.

(ii) Registering information on the researcher

The organization to which the proponent belongs must register information regarding the proponent as a piece of researcher information and, then, provide a login ID and password.

For how to register researcher information, see the manual for the representatives of the clerical work and for the clerical work personnel at R&D institutions.

(2) Registering application information to e-Rad

For how the proponent uses e-Rad for his or her application, see the instruction manual (https://www.e-rad.go.jp/manual/for_researcher.html) for researchers available on the portal site. Agree to the terms of the service and register your application.

(3) Preparing R&D project proposals

In order to prepare an R&D project proposal, carefully read the instructions in this application form.

<PRECAUTIONS>

(i) Make sure the recommended system requirements are met before you log in to e-Rad. Recommended system environments for using e-Rad include IE, Firefox, Chrome, and Safari.

(ii)You need to register the application information over the Internet. When registering your application, attach the R&D project proposal. Access the website of this call (https://www.jst.go.jp/moonshot/en/application/202112/) and download the application form and the R&D project proposal form. You can upload a file that is roughly 3 MB or smaller as the electronic media for your application form; the maximum file size is 10 MB. Pay attention to the file size when using image data.

(iii) You can upload PDF files only as application forms. Note the following instructions when preparing PDF files.

- Before you convert a file into PDF format, delete revision histories.
- Do not use a password to protect the PDF file of your R&D project proposal.
- Make sure that the PDF file contains page numbers after its conversion.
- Make sure that you check the PDF file after its conversion. The characters in the page or the whole file may be incorrectly converted if you use external characters, special characters, or the like.

(iv) Your application is invalid if the status of your application is not “Processing to distribute to an organization” or “Accepted.” For the status of your application, see the “Project List” page.

(4) Others

Your application is not examined if the documents in your application are not complete or are faulty. Carefully read the instructions about preparing the files described in this application form and the template of the R&D project proposals. (Do not change the formats of the application files.) You will not be allowed to replace your application files. Your application files will also not be returned.

6.3 Others

(1) Inquiries about how to use e-Rad

Contact our personnel in charge of JST programs if your inquiry is about the program . Contact e-Rad Help Desk if your inquiry is about how to use e-Rad. Double-check the website of this call or the e-Rad portal site before you make inquiries. You are not allowed to make any inquiries about the status of selection or the adoption or rejection of your proposal.

Inquiries about this program; inquiries about the processes of preparing, submitting, or any other step concerning your application files	Department of Moonshot Research and Development Program, JST	Please ensure that any inquiries are made by e-mail. E-mail: moonshot-koubo@jst.go.jp Office hours: 10:00–17:00 *Except for Saturdays, Sundays, national holidays, and the year-end new-year holiday Tel: 03-5214-8419 We will only accept emergent telephone inquiries on the day of the deadline or in an emergency. Even if we receive your question(s) by telephone, we may ask to handle the issue via e-mail.
Inquiries about how to use e-Rad	e-Rad Help Desk	Phone Number: 0570-057-060 (Navigation Dial) Office hours: 9 AM – 6 PM *Except for Saturdays, Sundays, national holidays, and year-end new-year holidays

・The website for this call
https://www.jst.go.jp/moonshot/en/application/202112/
・ e-Rad portal site
https://www.e-rad.go.jp/

(2) When e-Rad can be used

e-Rad is, in principle, in operation 24×7. However, the service may be interrupted for system maintenance.

Before we interrupt the service, we post notifications on the e-Rad portal site.

(3) What you should do specifically and some precautions

Specific steps to use e-Rad will be posted on the website of this call during Mid-November. Your applications will be accepted on e-Rad from early-April.

The start of acceptance of applications will be announced on the website of this call.

・The website of this call (https://www.jst.go.jp/moonshot/en/application/202112/)

Appendix

○ **MS Goals**

The MS Goals that JST calls for proposals, and their respective Program Directors(PDs) are as follows.

Moonshot Goal 1	Realization of a society in which human beings can be free from limitations of body, brain, space, and time by 2050.(PD: Prof. HAGITA Norihiro)
Moonshot Goal 3	Realization of AI robots that autonomously learn, adapt to their environment, evolve in intelligence and act alongside human beings, by 2050.(PD: Prof. FUKUDA Toshio)
Moonshot Goal 6	Realization of a fault-tolerant universal quantum computer that will revolutionize economy, industry, and security by 2050.(PD: Prof. KITAGAWA Masahiro)

The following materials are posted on the webpage of the call:
https://www.jst.go.jp/moonshot/en/application/202112/

○ **Appendix 1: R&D Concepts**

Toward the achieving MS Goals, MEXT set the R&D concepts that challenging R&D should be promoted.

○ **Appendix 2: PD's Supplements**

Toward the achieving MS Goals and R&D concepts, PDs make the policy for selection of projects, and promotion of R&D.

○ **Attached Document 1: The basic approach for the Moonshot Research and Development Program (Council for Science, Technology and Innovation (CSTI), Headquarters for Healthcare Policy)**

○ **Attached Document 2: Guidelines for Operation and Evaluation of the Moonshot**

R&D Program (Cabinet Office, Ministry of Education, Culture, Sports, Science and Technology, Ministry of Economy, Trade and Industry)

Moonshot Research and Development - website

https://www.jst.go.jp/moonshot/en/application/202112/

See also this site for the latest information and FAQs.

[Inquiry Office]

Make sure to email us your inquiries.

Japan Science and Technology Agency

Department of Moonshot Research and Development Program

K's Gobancho, 7, Gobancho, Chiyoda-ku, Tokyo 102-0076 Japan

E-mail: moonshot-koubo@jst.go.jp

*Please make sure to write “[2022 PM]” in the subject.

(Office Hours: 10am-5pm, Except for Saturdays, Sundays, National holidays, and year-end new-year holidays)